

Catalogue no. 11F0027M — No. 076

ISSN 1703-0404

ISBN 978-1-100-20037-8

Research Paper

Economic Analysis (EA) Research Paper Series

A Social Accounting Matrix for Canada

by Yusuf Siddiqi and Meir Salem

Economic Analysis Division
18-F, R.H. Coats Building, 100 Tunney's Pasture Driveway, Ottawa, Ontario K1A 0T6
Telephone: 1-800-263-1136



Statistics
Canada

Statistique
Canada

Canada

A Social Accounting Matrix for Canada

by

Yusuf Siddiqi and Meir Salem

11F0027M No. 076

ISSN 1703-0404

ISBN 978-1-100-20037-8

Statistics Canada

Economic Analysis Division

**18-F, R.H. Coats Building, 100 Tunney's Pasture Driveway
Ottawa K1A 0T6**

How to obtain more information:

National inquiries line: 1-800-263-1136

E-Mail inquiries: infostats@statcan.gc.ca

February 2012

The authors are grateful for constructive comments and suggestions from members of the Statistics Canada National Accounts Advisory Committee and Income and Wealth Committee. They wish to thank especially Karen Wilson, Catherine Van Rompaey, Brian Murphy, and Brent Langen for helpful feedback.

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2012

All rights reserved. Use of this publication is governed by the Statistics Canada Open Licence Agreement. (<http://www.statcan.gc.ca/reference/copyright-droit-auteur-eng.htm>).

La version française de cette publication est disponible (n° 11F0027M au catalogue, n° 076).

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, the Agency has developed standards of service which its employees observe in serving its clients. To obtain a copy of these service standards, please contact Statistics Canada toll free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca. Under "Our agency" click on About us > The agency > and select "Providing services to Canadians".

Economic Analysis Research Paper Series

The Economic Analysis Research Paper Series provides for the circulation of research conducted by the staff of National Accounts and Analytical Studies, visiting Fellows and academic associates. The research paper series is meant to stimulate discussion on a range of topics including the impact of the New Economy, productivity issues, firm profitability, technology usage, the effect of financing on firm growth, depreciation functions, the use of satellite accounts, savings rates, leasing, firm dynamics, hedonic estimations, diversification patterns, investment patterns, the differences in the performance of small and large, or domestic and multinational firms, and purchasing power parity estimates. Readers of the series are encouraged to contact the authors with comments, criticisms and suggestions.

The primary distribution medium for the papers is the Internet. These papers can be downloaded from the Internet at www.statcan.gc.ca for free.

All papers in the Economic Analysis Series go through institutional and peer review to ensure that they conform to Statistics Canada's mandate as a government statistical agency and adhere to generally accepted standards of good professional practice.

The papers in the series often include results derived from multivariate analysis or other statistical techniques. It should be recognized that the results of these analyses are subject to uncertainty in the reported estimates.

The level of uncertainty will depend on several factors: the nature of the functional form used in the multivariate analysis; the type of econometric technique employed; the appropriateness of the statistical assumptions embedded in the model or technique; the comprehensiveness of the variables included in the analysis; and the accuracy of the data that are utilized. The peer group review process is meant to ensure that the papers in the series have followed accepted standards to minimize problems in each of these areas.

Publications Review Committee
Analytical Studies Branch, Statistics Canada
18th Floor, R.H. Coats Building
Ottawa, Ontario K1A 0T6

Symbols

The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^a value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^p preliminary
- ^r revised
- ^x suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^e use with caution
- ^f too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

Preface

This paper explores how the rich set of outputs provided by the National Accounts can be expanded to provide new uses for analysts. It extends the existing supply and use tables to look at the incomes, outlays, savings, and fiscal transfers of the household sector by income quintile and other household attributes. The authors also recast existing National Accounts data to provide an alternative perspective on household savings. They also extend existing accounts to show product taxes by type of expenditure and type of tax.

The paper was written several years ago and has been presented in different international forums. It makes use of data for the year 2000. It has circulated for some years in mimeo format. Since requests are continually being made for the paper version, it is being published in the *Economic Analysis Research Paper Series* in order to give users greater access to its findings.

The publication of this paper coincides with the upcoming revision of the Canadian System of National Accounts (CSNA), whereby a number of adjustments implemented will become permanent fixtures of the CSNA. As a result, some of the adjustments proposed in the paper will no longer apply once the revised CSNA data are released.

Table of contents

Abstract	6
Executive summary	7
1 Introduction.....	8
2 Background.....	10
3 The aggregate Social Accounting Matrix for Canada (Tables 1 and 2)	11
4 A disaggregate Social Accounting Matrix.....	17
5 Three Social Accounting Matrix applications	24
6 First application: Expanding the household sector of the Social Accounting Matrix.....	26
7 Integration of the Survey of Household Spending and System of National Accounts household accounts	28
7.1 Delineation of the household sector.....	28
7.2 Employment benefits	29
7.3 Owner-occupied dwellings.....	30
7.4 Insurance income and pension income	31
7.5 Insurance other than life insurance.....	33
7.6 The treatment of interest.....	33
7.7 The treatment of employees' contributions to pensions.....	34
7.8 The treatment of holding gains	34
8 A transaction-based integrated household account.....	38
9 Second application: Breakdown of employee compensation by social attributes	42
10 Third application: Expanding the government account (taxes on products by type and by origin)	48
11 Conclusion	51
12 Appendix	52
12.1 Results for households in the third income quintile.....	52
12.2 Labour compensation in 2000 — Tables	53
12.3 Compensation per hour in 2000 — Tables	61
References.....	69

Abstract

This paper presents a first Social Accounting Matrix (SAM) compiled for Canada. Using data for the year 2000, the authors construct a SAM for the national economy. A SAM extends the National Accounts to allow for a fuller understanding of the socioeconomic system that captures the interdependencies of institutional groups. This paper presents a macro SAM with three micro extensions. The first application expands the household sector through integration with household surveys, showing incomes, outlays, savings, and fiscal transfers of the sector by income quintile and other household attributes. For this exercise, the authors use a market-transaction approach, which introduces a new perspective on household savings that diverges from national accounting concepts and the Canadian System of National Accounts sub-control totals. The second application expands employment income by age, gender, educational attainment, and industry of employment. The third application shows product taxes by type of expenditure and type of tax.

Executive summary

This paper presents the first Social Accounting Matrix (SAM) compiled for Canada. Using data for the year 2000, the authors demonstrate the feasibility of constructing a SAM for the national economy. Being an extension of the existing National Economic Accounts, a SAM is a consistent and complete representation of the socioeconomic system that captures the interdependencies of institutional groups. It is both a conceptual framework and a data system that can support analyses of socioeconomic policy issues; be used to evaluate the socioeconomic impact of exogenous changes; or serve as a database for general equilibrium modeling. This paper presents a macro SAM with three micro extensions. The first application expands the household sector through integration with household surveys, showing incomes, outlays, savings, and fiscal transfers of the sector by income quintile and other household attributes. This expansion could be conducted within national accounting conventions reflected in the aggregate SAM. However, for this exercise, the authors use a market-transaction approach, which introduces a new perspective on household savings that diverges from national accounting concepts and Canadian System of National Accounts sub-control totals. The second application expands employment income by age, gender, educational attainment, and industry of employment. The third application shows product taxes by type of expenditure and type of tax.

1 Introduction

A Social Accounting Matrix (SAM) is a framework for analytical presentation of economic data jointly with other relevant data—such as data on social conditions or the environment—as an integrated whole. Such presentations go beyond what is available today from published national accounting statistics. Being an extension of existing national accounts, SAMs empower users of the accounts to more easily analyze socioeconomic questions, to supply the information needed for policy development, and to build general equilibrium models.

The System of National Accounts 1993 (SNA 1993) describes SAM in its broadest form, namely as a means of presenting national accounting data in the form of a matrix:

"A SAM is defined here as the presentation of SNA accounts in a matrix which elaborates the linkages between a supply and use table and institutional sector accounts".¹ (SNA 1993, paragraph 20.4)

A SAM depicts the entire circular flow of income for an economy in a (square) matrix format. It shows production leading to the generation of incomes, which, in turn, are allocated to institutional sectors.² In addition, it presents the redistribution of income leading to disposable income of institutional sectors. These incomes are either spent on products or saved. Expenditures by institutional sectors lead to production by domestic industries as well as supply from imports.

One decisive advantage of SAMs is their flexibility, permitting meso-level classification of social and economic statistics in a way that suits varied analytical objectives. For instance, the cells in Table 5, which show the compensation of employees (intersection of row 3a and columns 2a to 2c) in a macro SAM, can be expanded into an applied SAM to reveal the breakdown of this total by industry and by age group; this allows for an analysis of how different industries serve as income sources for different generations of workers. SNA 1993 describes such an applied SAM as follows:

"In many instances SAMs have been applied to an analysis of interrelationships between structural features of an economy and the distribution of income and expenditure among household groups. Evidently, SAMs are closely related to national accounts whereby their typical focus on the role of people in the economy may be reflected by, among other things, extra breakdowns of the household sector and a disaggregated representation of labour markets (i.e., distinguishing various categories of employed persons)." (SNA 1993, paragraph 20.4)

A key advantage of a SAM over the existing supply and use tables lies in the fact that it can be applied to a disaggregated household sector for the purpose of modeling the impact of exogenous changes on the system. Unlike a closed input-output model that uses a simple household sector, a SAM is capable of modeling inter-sectoral impacts by incorporating a complex household sector (e.g., households with different income levels and different induced expenditure patterns). Roland-Holst (1990, p. 125) suggests that inter-industry analysis that omits these considerations "can be seriously misleading."

1. SNA sector accounts are presented in T-format while the supply and use tables (input-output tables) are presented in matrix format.

2. The SNA 1993 defines an institutional unit as "an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities" (SNA 1993, paragraph 4.2). Persons and groups of persons in the form of households constitute institutional units. Other examples of institutional units include corporations, non-profit institutions, and some government units. Groups of institutional units then make up the sectors and sub-sectors of the System.

This paper presents two versions of SAM for Canada as described in the SNA 1993: an aggregate SAM and a disaggregate SAM. The latter is a compact disaggregation of SAM designed to illustrate SAM's potential to expand along any dimension. In addition, the paper presents three applications of SAM. The aggregate and disaggregate SAM use mainly data from the integrated economic accounts of the Canadian System of National Accounts (CSNA) recently completed at Statistics Canada (see Siddiqi [2004]).

The first of the three applications presented here shows the income, expenditures, and savings of the household sector by income quintile and other household attributes for the year 2000. This involves an integration of macro-level national accounts data by household sector with those of Statistics Canada's Survey of Household Spending (SHS). The second application expands aggregate employment income into industries and attributes,³ such as gender, age, educational attainment, and hours worked. It permits a range of analyses, such as how average hourly earnings vary according to age, gender, and education. The third application is constructed around indirect taxes, showing how the aggregate amount of commodity taxes varies by type of tax (and by jurisdiction), and provides the tax base to which tax rates are applied. These applications of SAM are built through integration of SNA data sources (e.g., as input-output tables) and other Statistics Canada sources (such as the SHS, the Survey of Employment, Payrolls and Hours, and the Labour Force Survey) as well as external data sources, such as income tax data from the Canada Revenue Agency (CRA).

3. Data on characteristics of employment are obtained from the Economic Analysis Division of Statistics Canada.

2 Background

Historically, SAMs have been produced by developing countries more than for developed countries. Given the greater prevalence of activism and centrally driven economic development policies in developing countries, it is not surprising to find that many developing countries have used SAMs for economic planning (see Pyatt and Round 1977). Resosudarmo and Thorbecke (1996) discuss the analysis of the impact of environmental pollution abatement policies on household incomes for different socioeconomic classes in Indonesia. More recent years have seen a resurgence of interest in applications of SAM to socioeconomic analysis.⁴ In 1996, the U.K. Office of National Statistics developed a pilot SAM for the United Kingdom for the year 1993 (Stuttard and Frogner 2003a). Reinert and Roland-Holst (1992) built a detailed SAM on trade policy analysis for the United States with respect to reference year 1988; they suggest that SAMs are rapidly becoming the standard data construct for general equilibrium models of trade policy. SAMs are now annually compiled by Statistics Netherlands for the domestic economy, and the Italian and British statistical offices are working on regular production of SAMs (Timmerman and Vande Ven 1994).⁵ In addition, regional SAMs have been built, in both developing and developed countries, for purposes of interregional and regional economic analysis (Thorbecke 1998, p. 317).

-
4. In fact, Richard Stone, the Noble laureate, produced the first SAM for the U.K. in the early 1960s; see "Social Accounting Matrix for Development Planning," by Graham Pyatt and Jeffrey I. Round (1977) (listed in references). Similarly, the Netherlands produced the first SAM for 1938 (see den Bakker et al. [1992]).
5. See "Accounting for Welfare with SESAME," by Steven J. Keuning (listed in references).

3 The aggregate Social Accounting Matrix for Canada (Tables 1 and 2)

In a SAM, rows record receipts (incomings) by origin, and columns record outlays (outgoings) by destination. Total receipts (row sums) equal total outlays (column sums). Accordingly, each account in a SAM is represented by a row and column pair, identically named. The SAM framework of the SNA 1993 distinguishes eleven accounts; these are listed in Tables 1 and 2 and Tables 5, 6 and 7, along both rows and columns. Tables 3 and 4 present the same information as that set out in Tables 1 and 2 while separating the government tax account.

In this section of the paper, the authors describe the aggregate SAM for Canada with respect to reference year 2000. The aggregate SAM provides coherent economic aggregates without sector or institutional detail. Each entry is in fact the grand total of a sub-matrix. For example, the entry described as "Output" at the intersection of the "Production (industries)" row and the "Goods and services (Products)" column of Table 1 is the sum total of all goods and services domestically produced in Canada for reference year 2000 contained in the make matrix of the Canadian input-output tables. That matrix sets out domestic production for 727 goods and services produced by 300 industries.

The entry "Intermediate consumption," at the intersection of the "Goods and services (Products)" row and "Production (industries)" column of Table 1, represents the sum total of the intermediate use matrix of the Canadian input-output tables. The entry "Gross value added" represents primary inputs cross-classified by industry.

Imports of goods and services are shown at the intersection of the "Rest of the world – current" row and the "Goods and Services (products)" column of Table 1. In the input-output tables, imports are potentially classified by 727 commodities. The import duties included in the value of imports in the input-output tables are removed here and shown with commodity taxes, at the intersection of the "Allocation of primary income" row and "Goods and services (products)" column of Table 1.

The "Goods and services (products)" row, shows the use of goods and services at purchasers' prices (\$2,479 billion). The breakdown of this figure in this row is the following: intermediate consumption (in the "Production [industries]" column of Table 1); final consumption expenditure (in the "Use of income [institutional sectors]" column of Table 1); changes in inventories (in the "Capital [institutional sectors]" column of Table 2); gross fixed capital formation (in the "Fixed capital formation [industries]" column of Table 2); and exports (in the "Rest of the world – current" column of Table 2). Column 1 of Table 1 shows how the supply of these goods and services is made up of domestic production (in the "Production [industries]" row), imports (in the "Rest of the world – current" row), and taxes on products (in the "Allocation of primary income [institutional sectors]" row).

In Table 1, the "Production (industries)" row presents the total domestic production of goods and services (\$1,965 billion) (in the "Goods and services [products]" column), while the "Production (industries)" column shows the breakdown of this figure into intermediate consumption (in the "Goods and services [products]" row) and gross value added (in the "Generation of income [value added categories]" row). The accounts represented by these two rows and columns are aggregate versions of the supply and use (input-output) tables of the CSNA, which are linked with the other accounts of the system.

The "Generation of income (value added categories)" row shows the categories of value added (in the "Production [industries]" column in Table 1). The corresponding column shows the payment of these incomes to institutional sectors.

The "Allocation of primary income (institutional sectors)" row records how primary incomes are allocated to institutional sectors: gross generated incomes (in the "Generation of income [value added categories]" column), taxes on products (in the "Goods and services [products]" column), property income received from other sectors (in the "Allocation of primary income [institutional sectors]" column),⁶ all in Table 1, and property income received from the rest of the world (in the "Rest of the world – current" column of Table 2). The "Allocation of primary income (institutional sectors)" column shows the property income paid to other sectors and to the rest of the world. The balancing item of this account (at the intersection of the "Secondary distribution of income [institutional sectors]" row and the "Allocation of primary income [institutional sectors]" column in Table 1) is national income.

The "Secondary distribution of income (institutional sectors)" account shows the relationship between the national income and disposable income. In the row are recorded the national income as well as inter-sectoral transfers, which include current transfers to and from the rest of the world. The balancing item (at the intersection of the "Use of income [institutional sectors]" row and the "Secondary distribution of income (institutional sectors)" column of Table 1), which equates the column and row totals, is disposable income.

The "Use of income (institutional sectors)" row and column in Table 1 describe, the use of disposable income. The column shows the amount of income used as final consumption expenditure (in the "Goods and services [products]" row) and gross saving (in the "Capital [institutional sectors]" row). This saving is carried forward into the capital account.

The "Capital (institutional sectors)" row⁷ shows the availability of funds coming from saving (in the "Use of income [institutional sectors]" column in Table 1), borrowing (in the "Financial [financial assets]" column in Table 2), inter-sectoral capital transfers (in the "Capital [institutional sectors]" column in Table 2), and capital transfers from the rest of the world (in the "Rest of the world – capital" column). The "Capital (institutional sectors)" column (in Table 2) records the allocation of these funds, namely, changes in inventories (in the "Goods and services [products]" row), inter-sectoral capital transfers (in the "Capital [institutional sectors]" row), gross fixed capital formation (in the "Fixed capital formation [industries]" row), lending (in the "Financial [financial assets]" row), and transfers payable to the rest of the world (in the "Rest of the world – capital" row). The balancing item—the net lending of the nation—can also be derived from the difference between borrowing and lending.

The "Fixed capital formation (industries)" row and column (Table 2) show gross capital formation (\$207 billion). This account can be expanded to show the composition of investment by sectors (household, business, and government) cross-classified by industry and type of capital good, etc.

The "Financial (financial assets)" row and column (Table 2) summarize the financial account, showing lending in the row and borrowing in the column. The balancing item is shown in the row because it equals net lending to the rest of the world.

The current transactions and capital transactions for the rest of the world are shown in the "Rest of the world – current" and "Rest of the world – capital" rows and columns, respectively (Table 2). The balancing item of the current account is viewed from the perspective of the rest of the world.

6. Note that inter-sectoral property income (in the "Allocation of primary income [institutional sectors]" column) changes only the distribution of income; it does not alter the total national income.

7. The design of this SAM provided under the SNA 1993 has interlaced the capital and finance accounts. The capital account is classified by institutional sector while the financial account is classified by assets. In a disaggregated SAM, both assets and liabilities are shown by institutional sector.

Table 1
Aggregate Social Accounting Matrix for Canada, 2000 — Part 1

Accounts (classification)	Goods and services (products)	Production (industries)	Generation of income (value added categories)	Allocation of primary income (institutional sectors)	Secondary distribution of income (institutional sectors)	Use of income (institutional sectors)
billions of dollars						
Goods and services (products)	...	976 ¹	...	...	...	794 ²
Production (industries)	1,965 ³	...	...	...	...	...
Generation of income (value added categories)	...	990 ⁴	...	...	...	...
Allocation of primary income (institutional sectors)	86 ⁵	...	990 ⁶	295 ⁷	...	...
Secondary distribution of income (institutional sectors)	...	...	...	1,048 ⁸	361 ⁹	...
Use of income (institutional sectors)	...	...	...	...	1,049 ¹⁰	0 ¹¹
Capital (institutional sectors)	...	...	...	...	...	255 ¹²
Fixed capital formation (industries)	...	...	...	...	...	...
Financial (financial assets)	...	...	...	...	...	...
Rest of the world — current	428 ¹³	...	...	57 ¹⁴	5 ¹⁵	...
Rest of the world — capital	...	...	...	...	...	...
Total	2,479	1,966	990	1,399	1,415	1,049

1. Intermediate consumption.

2. Final consumption expenditure.

3. Output.

4. Gross value added.

5. Taxes, less: subsidies, on products.

6. Gross generated income.

7. Property income.

8. Gross national income.

9. Current taxes on income, wealth, etc. and current transfers. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

10. Gross disposable income.

11. Adjustment for change in net equity of households on pension funds.

12. Gross saving.

13. Imports of goods and services.

14. Property income and taxes, less subsidies, on products and imports from the rest of the world.

15. Current taxes on income, wealth, etc. and current transfers to the rest of the world. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

Note: Details may not add because of rounding.

Table 2
Aggregate Social Accounting Matrix for Canada, 2000 — Part 2

Aggregate Social Accounting Matrix for Canada, 2000 - Part 2							
Accounts (classification)	Capital (institutional sectors)	Fixed capital formation (industries)	Financial (financial assets)	Rest of the world		Statistical adjustment	Total
				Current	Capital		
billions of dollars							
Goods and services (products)	12 ¹	207 ²	...	490 ³	...	...	2,479
Production (industries)	...	...	...	...	...	...	1,965
Generation of income (value added categories)	...	...	...	...	...	...	990
Allocation of primary income (institutional sectors)	...	...	...	29 ⁴	...	...	1,400
Secondary distribution of income (institutional sectors)	...	...	...	6 ⁵	...	...	1,415
Use of income (institutional sectors)	...	...	...	...	...	...	1,049
Capital (institutional sectors)	3 ⁶	...	351 ⁷	...	5 ⁸	-6	608
Fixed capital formation (industries)	207 ⁹	...	...	...	...	...	207
Financial (financial assets)	386 ¹⁰	...	...	...	-41 ¹¹	6	351
Rest of the world – current	...	...	...	...	...	...	490
Rest of the world – capital	0 ¹²	...	...	-36 ¹³	...	...	-36
Total	608	207	351	490	-36	0	...

1. Changes in inventories.

2. Gross fixed capital formation.

3. Exports of goods and services.

4. Property income.

5. Current taxes on income, wealth, etc. and current transfers from the rest of the world. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

6. Capital transfers.

7. Borrowing.

8. Transfers from the rest of the world.

9. Gross fixed capital formation.

10. Lending.

11. Net lending of the rest of the world.

12. Capital transfers to the rest of the world.

13. Current external balance.

Note: Details may not add because of rounding.

Table 3

Aggregate Social Accounting Matrix for Canada showing taxes on products, 2000 — Part 1

Accounts (classification)	Goods and services (products)	Production (industries)	Generation of income (value added categories)	Generation of income (value added categories)	Secondary distribution of income (institutional sectors)	Use of income (institutional sectors)
billions of dollars						
Goods and services (products)	...	959 ¹	...	...	...	734 ²
Production (industries)	1,965 ³	...	...	...	...	...
Generation of income (value added categories)	...	990 ⁴	...	...	...	...
Generation of income (value added categories)	...	...	990 ⁵	295 ⁶	...	...
Secondary distribution of income (institutional sectors)	...	...	...	1,048 ⁷	361 ⁸	...
Use of income (institutional sectors)	...	...	...	...	1,049 ⁹	...
Capital (institutional sectors)	...	...	...	...	...	255 ¹⁰
Fixed capital formation (industries)	...	...	...	...	...	...
Financial (financial assets)	...	...	...	...	...	...
Taxes on products	...	17 ¹¹	...	...	...	60 ¹²
Rest of the world – current	428 ¹³	...	...	57 ¹⁴	5 ¹⁵	...
Rest of the world – capital	...	...	...	...	...	...
Total	2,393	1,966	990	1,399	1,415	1,049

1. Intermediate consumption.

2. Final consumption expenditure.

3. Output.

4. Gross value added.

5. Gross generated income.

6. Property income.

7. Gross national income.

8. Current taxes on income, wealth, etc. and current transfers. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

9. Gross disposable income.

10. Gross saving.

11. Taxes on products.

12. Taxes on products.

13. Imports of goods and services.

14. Property income and taxes less subsidies on products and imports paid to the rest of the world.

15. Current taxes on income, wealth, etc. and current transfers to the rest of the world. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

Note: Details may not add because of rounding.

Table 4

Aggregate Social Accounting Matrix for Canada showing taxes on products, 2000 — Part 2

Accounts (classification)	Capital (institutional sectors)	Fixed capital formation (industries)	Financial (financial assets)	Taxes on products	Rest of the world		Statistical adjustment	Total
					Current	Capital		
billions of dollars								
Goods and services (products)	12 ¹	198 ²	...	...	490 ³	...	...	2,393
Production (industries)	...	...	...	...	...	...	...	2,966
Generation of income (value added categories)	...	...	...	...	...	...	...	990
Allocation of primary income (institutional sectors)	...	...	...	86 ⁴	29 ⁵	...	...	1,400
Secondary distribution of income (institutional sectors)	...	...	...	...	6 ⁶	...	...	1,415
Use of income (institutional sectors)	...	...	...	...	...	...	...	1,049
Capital (institutional sectors)	0 ⁷	...	351 ⁸	...	...	5 ⁹	-6	605
Fixed capital formation (industries)	207 ¹⁰	...	...	...	...	...	...	207
Financial (financial assets)	386 ¹¹	...	...	...	...	-41 ¹²	6	351
Taxes on products	...	9 ¹³	...	...	...	...	...	86
Rest of the world – current	...	...	...	...	...	...	...	490
Rest of the world – capital	0 ¹⁴	...	...	...	-36 ¹⁵	...	...	-36
Total	605	207	351	86	490	-36	0	...

1. Changes in inventories.

2. Gross fixed capital formation.

3. Exports of goods and services.

4. Taxes on production.

5. Property income.

6. Current taxes on income, wealth, etc. and current transfers from the rest of the world. "Current taxes on income, wealth, etc." consists of taxes on the income of households or profits of corporations and taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).

7. Capital transfer.

8. Borrowing.

9. Transfers from the rest of the world.

10. Gross fixed capital formation.

11. Lending.

12. Net lending of the rest of the world.

13. Taxes on products.

14. Capital transfers to the rest of the world.

15. Current external balance.

Note: Details may not add because of rounding.

4 A disaggregate Social Accounting Matrix

As mentioned earlier, a SAM can be estimated and presented for any level and type of aggregation that analysis demands, provided that data sources permit. Following the SNA 1993, the authors present a disaggregate version of the SAM in Tables 5, 6 and 7. Since a fully disaggregate SAM would have unmanageable dimensions, they present a compact disaggregation consisting of three industry/commodity groups. This version of SAM articulates a sub-account for each account presented in Tables 1 and 2. As with the SNA 1993, the first number of each sub-account refers to the summary Tables 1 and 2, while the second label refers to the details shown for that sub-account.

The domestic output shown at the intersection of the "Production (industries)" row and "Goods and services (products)" column in Table 1 is disaggregated in Table 5 by industry and commodity (rows coded 2a to 2c, columns coded 1a to 1c). This block shows the commodities produced by each industry. At the limit, this account can be disaggregated to 300 industries and 727 goods and services on the basis of the most detailed Canadian input-output tables. Columns 2a, 2b, and 2c represent the industry use matrix. The block (rows coded 1a, 1b, 1c, and columns coded 2a, 2b, 2c) is an intermediate input commodity-by-industry matrix, while the block (rows 3a, 3b, 3c, 3d, and columns 2a, 2b, 2c) shows primary inputs cross-classified by industry.

Taxes on products and services are shown in the "Allocation of primary income" row 4c of Tables 5, 6 and 7. Canadian accounts distinguish fourteen types of product taxes. These taxes are allocated to each purchaser of a commodity (on the basis of taxability) whether industries or final demand. The sub-matrix on commodity taxes is expanded in Section 10. The Final Demand Table comprises 48 categories of personal expenditure, 39 industry groups purchasing machinery and equipment, and 40 industry groups purchasing construction, 6 functional classes of government expenditure, 2 categories of inventories, and 2 categories of exports. Each of these classes is cross-classified by commodity. Thus, there are fourteen tax matrices (corresponding to types of taxes) relating to industries and final demand categories. This matrix corresponds to the cell at the intersection of the "Allocation of primary income (institutional sectors)" row and the "Goods and services (products)" column in Table 1 in the aggregate matrix.

The block (row 10 and columns 1a, 1b, and 1c) (Table 5) shows imports by commodities. From Canadian input-output tables, imports data can be obtained for potentially 727 goods and services. The import duties normally included in the value of imports are shown separately here with commodity taxes at row 4c.

The totals of columns 1a, 1b, and 1c (Table 5) represent the supply of each commodity. The supply of each commodity (for example, the commodity found in row 1c) shown in the column total is equal to domestic production plus taxes on products plus imports. The corresponding row total, for example, the total for row 1c (Table 7), is equal to the sum of intermediate use (for example: row 1c and columns 2a, 2b, and 2c in Table 5) and final use, namely, consumer expenditure (row 1c and column 6a in Table 6), government expenditure (row 1c and column 6c in Table 6), fixed capital formation used by various industries (row 1c and columns 8a, 8b, 8c in Table 7), and exports (row 1c and column 10 in Table 7). The explanation for the rest of the accounts is the same as the aggregate SAM except for the sector or transaction details.

Table 5**Expanded Social Accounting Matrix for Canada, 2000 — Part 1**

Accounts (classification)	Code	Goods and services (CPC)			Production (ISIC)			Generation of income			
		Products 1	Products 2	Products 3	Industry A	Industry B	Industry C	Compensation of employees	Mixed income, gross	Operating surplus, gross	Other taxes, less subsidies, on production
Code 1a	Code 1b	Code 1c	Code 2a	Code 2b	Code 2c	Code 3a	Code 3b	Code 3c	Code 3d		
billions of dollars											
Goods and services (CPC)											
Products 1 ¹	1a	...	...	...	17	78	4	...	...	...	...
Products 2 ²	1b	...	...	...	25	302	127	...	...	...	...
Products 3 ³	1c	...	...	...	24	111	287	...	...	...	...
Production (ISIC)											
Industry A ⁴	2a	134	10	2	...	...	...	...	...	...	...
Industry B ⁵	2b	3	728	24	...	...	...	...	...	...	...
Industry C ⁶	2c	2	31	1,031	...	...	...	...	...	...	...
Generation of income											
Compensation of employees - domestic	3a	...	...	...	17	139	389	...	...	...	...
Mixed income, gross,	3b	...	...	...	3	6	58	...	...	...	...
Operating surplus, gross	3c	...	...	...	60	112	164	...	...	...	...
Other taxes, less subsidies, on production	3d	...	...	...	-1	8	34	...	...	...	...
Allocation of primary income											
Households, employees and NPISHs	4a	...	...	...	...	...	...	545	66	54	...
Corporations	4b	...	...	...	...	...	...	...	...	262	...
Government	4c	1	61	24	...	...	...	...	...	20	42
Secondary distribution of income											
Households, employees and NPISHs	5a	...	...	...	...	...	...	...	...	...	...
Corporations	5b	...	...	...	...	...	...	...	...	...	...
Government	5c	...	...	...	...	...	...	...	...	...	...
Use of (adjusted) disposable income											
Households, employees and NPISHs	6a	...	...	...	...	...	...	...	...	...	...
Corporations	6b	...	...	...	...	...	...	...	...	...	...
Government	6c	...	...	...	...	...	...	...	...	...	...
Capital											
Households, employees and NPISHs	7a	...	...	...	...	...	...	...	...	...	...
Corporations	7b	...	...	...	...	...	...	...	...	...	...
Government	7c	...	...	...	...	...	...	...	...	...	...

See notes at end of table.

Table 5**Expanded Social Accounting Matrix for Canada, 2000 — Part 1 (concluded)**

Account (classification)	Code	Goods and services (CPC)			Production (ISIC)			Generation of income			
		Products 1	Products 2	Products 3	Industry A	Industry B	Industry C	Compensation of employees	Mixed	Operating	Other taxes, less subsidies, on production
									income, gross	surplus, gross	
		Code 1a	Code 1b	Code 1c	Code 2a	Code 2b	Code 2c	Code 3a	Code 3b	Code 3c	Code 3d
billions of dollars											
Gross fixed capital formation (ISIC)											
Industry A ⁴	8a	...	...	...	...	...	...	...	...	...	...
Industry B ⁵	8b	...	...	...	...	...	...	...	...	...	...
Industry C ⁶	8c	...	...	...	...	...	...	...	...	...	...
Financial											
Currency and deposits	9a	...	...	...	...	...	...	...	...	...	...
Loans	9b	...	...	...	...	...	...	...	...	...	...
Other financial assets	9c	...	...	...	...	...	...	...	...	...	...
Rest of the world											
Current	10	26	348	54	...	...	...	...	...	...	...
Capital	11	...	...	...	...	...	...	...	...	...	...
Total	...	166	1,178	1,135	145	756	1,063	545	66	336	42

1. "Products 1" include the following CPC products: agriculture, forestry and fishery products.

2. "Products 2" include the following CPCP products: ores and minerals, electricity, gas and water; food products, beverages and tobacco; textiles, apparel and leather products; other transportable goods, except metal products, machinery and equipment; metal products, machinery and equipment; constructions and construction services.

3. "Products 3" include the following CPC products: distributive trade services; accommodation, food and beverage serving services; transport services; utilities distribution services; financial and related services; real estate services; rental and leasing services; business and production services; community, social and personal services.

4. "Industry A" includes the following ISIC products: agriculture, forestry and fishing.

5. "Industry B" includes the following ISIC products: mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities; and construction.

6. "Industry C" includes the following ISIC products: wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities; public administration and defence; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; activities of extraterritorial organizations and bodies.

Notes: CPC: Central Product Classification; ISIC: International Standard Industrial Classification; NPISH: non-profit institution serving households. Details may not add because of rounding.

Table 6
Expanded Social Accounting Matrix for Canada, 2000 — Part 2

Accounts (classification)	Code	Allocation of primary income			Secondary distribution of income			Use of (adjusted) disposable income			Capital		
		Households, employees and NPISHs	Corporations	Government	Households, employees and NPISHs	Corporations	Government	Households, employees and NPISHs	Corporations	Government	Households, employees and NPISHs	Corporations	
		Code 4a	Code 4b	Code 4c	Code 5a	Code 5b	Code 5c	Code 6a	Code 6b	Code 6c	Code 7a	Code 7b	
billions of dollars													
Goods and services (CPC)													
Products 1 ¹	1a	...	...	...	...	...	...	10	...	...	...	...	...
Products 2 ²	1b	...	...	...	...	...	...	184	...	...	...	...	12
Products 3 ³	1c	...	...	...	...	...	...	402	...	198	...	...	...
Production (ISIC)													
Industry A ⁴	2a	...	...	...	...	...	...	...	...	...	...	...	...
Industry B ⁵	2b	...	...	...	...	...	...	...	...	...	...	...	...
Industry C ⁶	2c	...	...	...	...	...	...	...	...	...	...	...	...
Generation of income													
Compensation of employees - domestic	3a	...	...	...	...	...	...	...	...	...	...	...	...
Mixed income, gross,	3b	...	...	...	...	...	...	...	...	...	...	...	...
Operating surplus, gross	3c	...	...	...	...	...	...	...	...	...	...	...	...
Other taxes, less subsidies, on production	3d	...	...	...	...	...	...	...	...	...	...	...	...
Allocation of primary income													
Households, employees and NPISHs	4a	...	106	5	...	...	...	...	...	...	...	...	...
Corporations	4b	38	51	52	...	...	...	...	...	...	...	...	...
Government	4c	...	37	5	...	...	...	...	...	...	...	...	...
Secondary distribution of income													
Households, employees and NPISHs	5a	742	...	...	...	2	110	...	...	...	...	...	...
Corporations	5b	...	192	...	...	...	...	...	...	...	...	...	...
Government	5c	...	...	114	201	48	...	...	...	...	...	...	...
Use of (adjusted) disposable income													
Households, employees and NPISHs	6a	...	...	...	653	...	...	...	...	...	...	...	...
Corporations	6b	...	...	...	...	142	...	...	...	...	...	...	...
Government	6c	...	...	...	...	...	254	...	...	...	...	...	...
Capital													
Households, employees and NPISHs	7a	...	...	...	...	...	...	57	...	...	...	...	...
Corporations	7b	...	...	...	...	...	...	...	142	...	...	...	...
Government	7c	...	...	...	...	...	...	...	...	56	...	...	...

See notes at end of table.

Table 6

Expanded Social Accounting Matrix for Canada, 2000 — Part 2 (concluded)

Accounts (classification)	Code	Allocation of primary income			Secondary distribution of income			Use of (adjusted) disposable income			Capital	
		Households, Corporations employees and NPISHs		Government employees and NPISHs	Households, Corporations employees and NPISHs		Government employees and NPISHs	Households, Corporations employees and NPISHs		Government employees and NPISHs	Households, Corporations employees and NPISHs	
		Code 4a	Code 4b	Code 4c	Code 5a	Code 5b	Code 5c	Code 6a	Code 6b	Code 6c	Code 7a	Code 7b
billions of dollars												
Gross fixed capital formation (ISIC)												
Industry A ⁴	8a	...	...	...	...	...	...	...	...	...	10	20
Industry B ⁵	8b	...	...	...	...	...	...	...	...	...	...	82
Industry C ⁶	8c	...	...	...	...	...	...	...	...	...	47	24
Financial												
Currency and deposits	9a	...	...	...	...	...	...	...	...	...	19	-3
Loans	9b	...	...	...	...	...	...	...	...	...	-1	58
Other financial assets	9c	...	...	...	...	...	...	...	...	...	21	260
Rest of the world												
Current	10	...	42	15	2	...	3	...	...	...	...	...
Capital	11	...	...	...	...	...	...	...	...	...	...	...
Total	...	780	428	191	856	192	367	653	142	254	96	453

1. "Products 1" include the following CPC products: agriculture, forestry and fishery products.

2. "Products 2" include the following CPCP products: ores and minerals, electricity, gas and water; food products, beverages and tobacco; textiles, apparel and leather products; other transportable goods, except metal products, machinery and equipment; metal products, machinery and equipment; constructions and construction services.

3. "Products 3" include the following CPC products: distributive trade services; accommodation, food and beverage serving services; transport services; utilities distribution services; financial and related services; real estate services; rental and leasing services; business and production services; community, social and personal services.

4. "Industry A" includes the following ISIC products: agriculture, forestry and fishing.

5. "Industry B" includes the following ISIC products: mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities; and construction.

6. "Industry C" includes the following ISIC products: wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities; public administration and defence; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; activities of extraterritorial organizations and bodies.

Notes: CPC: Central Product Classification; ISIC: International Standard Industrial Classification; NPISH: non-profit institution serving households. Details may not add because of rounding.

Table 7
Expanded Social Accounting Matrix for Canada, 2000 — Part 3

Accounts (classification)	Code	Gross fixed capital formation (ISIC)							Financial		Rest of the world		Statistical adjustment	Total
		Capital												
		Government	Industry A	Industry B	Industry C	Currency and deposits	Loans	Other financial assets	Current	Capital				
		Code 7c	Code 8a	Code 8b	Code 8c	Code 9a	Code 9b	Code 9c	Code 10	Code 11				
billions of dollars														
Goods and services (CPC)														
Products 1 ¹	1a	...	...	...	...	...	...	...	57	...	...	0	166
Products 2 ²	1b	...	28	67	81	...	...	...	351	...	...	1	1,178
Products 3 ³	1c	...	2	14	15	...	...	...	82	...	...	0	1,135
Production (ISIC)												0		
Industry A ⁴	2a	...	...	...	...	...	...	...	...	...	...	-1	145
Industry B ⁵	2b	...	...	...	...	...	...	...	...	...	...	1	756
Industry C ⁶	2c	...	...	...	...	...	...	...	...	...	...	-1	1,063
Generation of income														
Compensation of employees - domestic	3a	...	...	...	...	...	...	...	...	...	...	0	545
Mixed income, gross,	3b	...	...	...	...	...	...	...	...	...	...	-1	66
Operating surplus, gross	3c	...	...	...	...	...	...	...	...	...	...	0	336
Other taxes, less subsidies, on production	3d	...	...	...	...	...	...	...	...	...	...	1	42
Allocation of primary income														
Households, employees and NPISHs	4a	...	...	...	...	...	...	...	3	...	...	1	780
Corporations	4b	...	...	...	...	...	...	...	26	...	...	-1	428
Government	4c	...	...	...	...	...	...	...	...	...	...	1	191
Secondary distribution of income														
Households, employees and NPISHs	5a	...	...	...	...	...	...	...	2	...	...	0	856
Corporations	5b	...	...	...	...	...	...	...	...	...	...	-1	191
Government	5c	...	...	...	...	...	...	...	4	...	...	0	367
Use of (adjusted) disposable income														
Households, employees and NPISHs	6a	...	...	...	...	...	...	...	...	...	...	0	653
Corporations	6b	...	...	...	...	...	...	...	...	...	...	0	142
Government	6c	...	...	...	...	...	...	...	...	...	...	0	254
Capital														
Households, employees and NPISHs	7a	...	...	...	...	...	40	2	...	...	...	-3	96
Corporations	7b	...	...	...	...	16	22	273	...	4	...	-4	453
Government	7c	...	...	...	...	...	-1	-1	...	1	...	0	55

See notes at end of table.

Table 7

Expanded Social Accounting Matrix for Canada, 2000 — Part 3 (concluded)

Accounts (classification)	Code	Capital	Gross fixed capital formation (ISIC)				Financial		Rest of the world		Statistical adjustment	Total
		Government	Industry A	Industry B	Industry C	Currency and deposits	Loans	Other financial assets	Current	Capital		
		Code 7c	Code 8a	Code 8b	Code 8c	Code 9a	Code 9b	Code 9c	Code 10	Code 11		
billions of dollars												
Gross fixed capital formation (ISIC)												
Industry A ⁴	8a	...	...	...	...	...	...	...	...	...	0	30
Industry B ⁵	8b	...	...	...	...	...	...	...	...	...	-1	81
Industry C ⁶	8c	24	...	...	...	...	...	...	...	...	1	96
Financial												
Currency and deposits	9a	-9	...	...	...	...	...	...	...	5	4	16
Loans	9b	8	...	...	...	...	...	...	...	1	-5	61
Other financial assets	9c	32	...	...	...	...	...	...	...	-47	8	274
Rest of the world												
Current	10	...	...	...	...	...	...	...	...	...	0	490
Capital	11	...	...	...	...	...	...	...	-36	...	...	-36
Total	...	55	30	81	96	16	61	274	489	-36	0	...

1. "Products 1" include the following CPC products: agriculture, forestry and fishery products.

2. "Products 2" include the following CPCP products: ores and minerals, electricity, gas and water; food products, beverages and tobacco; textiles, apparel and leather products; other transportable goods, except metal products, machinery and equipment; metal products, machinery and equipment; constructions and construction services.

3. "Products 3" include the following CPC products: distributive trade services; accommodation, food and beverage serving services; transport services; utilities distribution services; financial and related services; real estate services; rental and leasing services; business and production services; community, social and personal services.

4. "Industry A" includes the following ISIC products: agriculture, forestry and fishing.

5. "Industry B" includes the following ISIC products: mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities; and construction.

6. "Industry C" includes the following ISIC products: wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities; public administration and defence; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; activities of extraterritorial organizations and bodies.

Notes: CPC: Central Product Classification; ISIC: International Standard Industrial Classification; NPISH: non-profit institution serving households. Details may not add because of rounding.

5 Three Social Accounting Matrix applications

This paper presents three applications of SAM with respect to the Canadian economy for reference year 2000. Each application entails expansion of the aggregate SAM along an economic or social dimension in a way that is both conceptually coherent and statistically integrated.

The first application of SAM presents incomes, outlays, and savings of the household sector by income quintile and other household attributes. This study would affect four accounts (see Tables 5, 6 and 7): "Allocation of primary income" (code 4a), "Secondary distribution of income" (code 5a), "Use of disposable income" (code 6a), and the "Capital" account (code 7a). The household sector in each of these accounts will be disaggregated by income quintile with SHS data for reference year 2000. The "Allocation of primary income" account would record primary income accruing to various income brackets (quintiles); the secondary distribution of income would include the transfers received and paid by each income quintile; and the use of disposal income would record the expenditures and savings by each income group. Expanding along the income dimension requires that the macro household estimates be integrated with data from household expenditure surveys and from other data sources on income and spending behaviour of households with different income profiles. The result is a fully integrated micro-macro framework that reveals not only how savings differ by income group, but also how different types of income (e.g., employment income versus social transfers) and different types of expenses (e.g., transfers to governments versus consumer expenditure) vary by income group.

The second application of SAM expands aggregate employment income (wages, salaries, and supplementary labour income). This estimate is expanded along the industry dimension, showing the origin of labour income of households, and along four socioeconomic dimensions, namely, age, education, gender of the worker, and hours worked. The first expansion merely presents a CSNA industry breakdown of employment income, whereas the second integrates these statistics with data on age, education, gender, and hours worked obtained from other surveys and administrative sources. In this second application, the household sector in the "Generation of income" account and industries in the "Production" account will be expanded. The result is a SAM that permits analyses such as with respect to how average hourly earnings of workers vary according to their age, their years of schooling, and their gender in a statistically integrated framework.

In the third application of SAM, taxes on products are expanded to show their makeup in terms of tax bases (e.g., final consumption, fixed capital formation), in terms of the jurisdiction of the tax (federal, provincial), and in terms of the type of tax applied. This expansion of SAM permits an analysis of the origins of tax revenues and the relative contributions of tax jurisdictions. For this purpose, the authors have removed taxes on products from the allocation of primary income and created a product tax account (Tables 3 and 4, "Taxes on products" row and column). The tax account row depicts taxes paid on intermediate consumption and on final consumption, and the column shows the total tax on products at the intersection of the tax account column and the allocation of primary income.

The principal contribution of these applications of SAM is in making available a coherent framework for analysis that integrates macro statistics from the national accounts with micro statistics on agents from social or economic surveys. In the first two applications presented here, the constructs involve an integration of two or more statistical sources, typically one at the macro level and one or more at the micro level. At the micro level, the focus is on the decision-making of individual units such as households or persons. Decisions made by these units are a function of certain observable attributes, such as the individuals' ages, number of children, source of employment, level of income, and single versus multi-parent family type. While

statistics on these attributes are available from surveys (e.g., household surveys or labour force surveys), these bodies of information are usually separate from those that make up national accounts aggregates. National accounting data are generally concerned with aggregates that describe macroeconomic variables such as a sector's disposable income, its savings, or its expenditures. So long as these statistics in this domain remain separate from statistics on microeconomic agents, one cannot explain macroeconomic phenomena described in national accounts in terms of changes in behaviour that occur at the micro level, such as that of the household, the individual, or the firm.

Using statistics at the micro level is often problematic because the concepts and definitions relating to these statistics are heterogeneous; consequently, this makes linkages among them, and their integration with macro statistics, difficult. Over the last decade, Statistics Canada has streamlined the concepts and definitions relating to its survey and administrative data collection vehicles in order to maximize the consistency of its statistical outputs. Nevertheless, significant consistency issues in both concepts and methods still remain because data collection vehicles serve fundamentally different needs. For instance, variables used in household spending surveys are defined for capturing attributes that relate to consumption habits and that meet specific data collection objectives; these objectives may differ from those of labour force surveys, which are intended to gather a coherent picture of labour market participation.

6 First application: Expanding the household sector of the Social Accounting Matrix

This section expands the household sector of the disaggregated SAM presented in Tables 5, 6 and 7 so that incomes, outlays, and savings can be shown by socioeconomic attributes, such as income bracket or household type. After removing non-profit institutions from the sector, the household sector account proper can be integrated with socioeconomic data from the SHS and personal income tax data from the CRA. The literature shows two clearly different approaches to such integration. The first approach—used by den Bakker et al. (1994) in building a historical SAM for the Netherlands—expands the household sector within the SNA framework. Adapting the (micro level) household statistics to the national accounting control totals results in national accounting concepts and imputations being preserved while the data are disaggregated by household attributes.

The second approach, advocated by Ruggles and Ruggles (1986) and followed in this section, integrates national accounts aggregates with household level data on the basis of a market transaction view of household incomes and outlays. This involves recording transactions that constitute incomes and outlays of the households as they occur rather than following some SNA conventions. While the SNA uses the transaction as the basis for measuring the flow of economic activity between institutional units, the system provides for three explicit exceptions, whereby transactions are not recorded as observed (SNA 1993, paragraphs 3.12 to 3.15). In each of these "rearrangements", transactions are rearranged so as to "bring out the underlying economic relationships more clearly" (SNA 1993, paragraph 3.23). In compiling the incomes and outlays of the household sector according to the SNA 1993, some transactions are re-routed and others are partitioned in order to portray the economic significance of the activity between the parties. These rearrangements result in income, outlay, and savings for the household sector that differ from what this sector actually experiences. In the market-transaction approach followed in this paper, these rearrangements are reversed in order to conceptually integrate macro and micro statistics and to arrive at savings consistent with households' actual experience. The rearrangements addressed in this paper relate to the treatment of owner-occupied dwellings, the treatment of investment incomes of insurance carriers and pension funds, the contribution of employers to pension and social security schemes, the treatment of insurance other than life insurance, and the treatment of imputed financial services. Although using the transaction basis alters national accounts aggregates such as household income, outlay, and savings, this method introduces a new perspective on the household sector by showing disaggregate socioeconomic data that are especially suited for analyzing present and future household behaviour in areas such as savings, investment, and consumption. The integrated household account can also be used to address questions such as the adequacy of actual savings in providing households with income security, the role of government transfers in fiscal redistribution among different income levels, family structures, and employment profiles. SAMs that serve other analytical needs can be constructed from the methodology and the integrated database used in this section. Readers should note that changes to national accounts aggregates resulting from the application of the transaction criterion are confined only to the household account shown in this section of the paper. Aggregates shown in Tables 1 and 2 and Tables 5, 6, and 7, and those shown in subsequent applications of SAM are not modified on the basis of the work done in this section of the paper.

In addition, using the market transaction criterion entails including realized capital gains as household income. This is consistent with the disposable income recorded in the accounts, which nets out income taxes on all forms of income, including taxable capital gains.

Table 8
Persons, unincorporated businesses and non-profit institutions
serving households, Canada, 2000

Incomes and outlays	Value billions of dollars
Income	840.4
Wages, salaries and supplementary labour income	545.2
Wages and salaries	483.9
Supplementary labour income	61.3
Employers' contributions to employee benefits	56.6
Retirement allowances paid to employees	4.8
Unincorporated business net income	66.2
Imputed income, owner-occupied dwellings	24.0
Mixed income from all other industries	42.2
Interest, dividends and miscellaneous investment receipts	114.7
Interest, dividend, royalties, and other income	62.9
Income supplement from insurance and NPISHs	16.8
Investment income from pension funds	35.0
Current transfers from government	0.1
Employment insurance benefits	9.6
Social security and other benefits to persons	92.9
Grants to non-profit organizations	8.0
Current transfers from corporations	1.5
Current transfers from non-residents	2.4
Outlay	810.5
Personal expenditure on goods and services	596.0
Imputed rent, owner-occupied dwellings	82.6
Imputation for financial services (FISIM)	14.2
Operating expenditures of non-profit organizations	15.8
Other personal expenditures	466.4
Current transfers to government	200.8
Income taxes	144.0
Contributions to social insurance (EI, CPP, QPP, workers' compensation)	49.8
Other current transfers	7.1
Current transfers to corporations (transfer portion)	11.7
Current transfers to non-residents	1.9
Saving	29.9
Net disposable income	639.6
Capital consumption of owner-occupied housing	12.9
Disposable income	652.4

Notes: CPP: Canada Pension Plan; EI: employment insurance; FISIM: financial intermediation service indirectly measured; NPISH: non-profit institution serving households; QPP: Quebec Pension Plan. Figures may not add up to totals shown due to rounding.

7 Integration of the Survey of Household Spending and System of National Accounts household accounts

The data sources used for this study are the reference year 2000 SHS and personal income tax data from the Canada Revenue Agency (CRA) for the same year. The survey collected data from a sample of about 21,000 households on their income, expenses, dwelling characteristics, household equipment, family structure or household type, household balance sheet, and a number of other analytically useful characteristics. In order to construct a coherent SAM for the household sector, it is necessary to harmonize the concepts underlying the SNA household sector account with those of the SHS and to achieve an acceptable measure of statistical integration by making appropriate modifications to one or both sides. However, integration of the two sets of accounts is problematic because the system of national accounts follow definitions and standards designed to facilitate macroeconomic analysis; they adhere to concepts such as neoclassical theories of consumption and production and to international standards and conventions for compilation of national economic accounts. These concepts are often at variance with individuals' or households' perception of what they consume, what they earn, and what they save because individuals and households are concerned solely with the micro unit, namely, the household. For instance, a household would consider the funds it receives from a pension plan, from disability insurance, from interest on bank deposits, or from gains from sales of its assets to be its income for household management purposes. By contrast, none of the above are considered income for the household sector of the economy since they do not originate in current economic production. Similarly, households do not consider as income the contributions of an employer to their pension plans or to disability insurance, since they cannot use these sums to defray household expenses (until they receive the associated benefits). However, all these items enter into income of the household sector for national accounts purposes. In this study, the authors follow a market-transaction approach, as proposed by Ruggles and Ruggles (1992), for harmonizing the concepts of income and expenses between the micro units (households) and the national accounts aggregates. As elaborated below, aggregates (such as income and savings) constructed under this approach differ substantially from those that follow SNA 1993 definitions. Table 8 sets out the CSNA household income and outlay for the year 2000 as published by the CSNA. It shows savings of \$29.9 billion as the balancing item of income (\$840.4 billion) over outlays (\$810.5 billion) of the sector.

Steps that are taken to harmonize and integrate the two sets of accounts are discussed below under separate headings.

7.1 Delineation of the household sector

The CSNA presently consolidates non-profit institutions serving households with the household sector into "Persons, Unincorporated Businesses, and Non-profit Institutions Serving Households." The operating expenses of non-profit institutions are financed by contributions from governments, businesses, and households.⁸ The presence of non-profit institutions in the sector makes it difficult to relate the aggregate sector with the behaviour of the households that make up most of the sector, since the economic behaviour of these organizations differs significantly from that of persons. Sectoring out these institutions as recommended by the SNA 1993 (SNA 1993, paragraph 4.10) would constitute an appropriate treatment for improving macro household statistics. This will reduce household revenues and expenses by \$9.8 billion (Table 9). While this will have no effect on gross saving, it will reduce the level of income shown for the sector and harmonize income and expense aggregates with the SHS.

8. The contributions of households to non-profit institutions are treated as an intra-sectoral transfer. In the household sector presented here, these are made explicit once the institutions are removed from the sector.

Table 9**Treatment on non-profit institutions serving households, reference year 2000**

SNA income and transaction income	Value
	billions of dollars
SNA income	
Income from contributions and membership fees, households	6.0
Income from contributions, businesses and government	8.4
Investment income	0.9
Capital cost allowance	0.5
Expenses of persons, unincorporated businesses and non-profit institutions serving households	15.8
Transaction income	
Income from contributions and membership fees, households	6.0
Expenses of households and unincorporated businesses	6.0

Notes: SNA: System of National Accounts. Figures may not add up to totals shown because of rounding.

7.2 Employment benefits

Following SNA conventions (SNA 1993, paragraphs 7.43 and 7.44), national accounts aggregates show all contributions made by employers toward social insurance, private insurance, and pension plans of employees as labour compensation even though these are paid directly into public or private plans.⁹ The economic logic underlying this convention is that these expenditures benefit employees and represent a cost to the employer. The convention facilitates macro economic analysis and to account for production and consumption as aggregate concepts. However, it is inherently problematic for microeconomic analysis of the household. While it is true that household decisions are made in full cognizance of the benefits receivable from these plans, such benefits cannot be considered income of the household for microeconomic purposes. Employer contributions provide income in the future (in the case of pensions and life insurance), which will be accounted for in those periods. In the current period, households have no discretion in deciding whether to spend these sums on goods and services or to save them.

However, two classes of employment benefits should be included as income for the current year because these constitute the consumption of real services in the current period: retirement allowances (\$4.8 billion), which individuals receive in cash upon leaving the workforce; and employer contributions to employee welfare benefits (\$13.9 billion), which include dental insurance plans, drug plans, and disability insurance (Table 10).

9. "An amount equal to the value of the social contributions incurred by employers in order to obtain social benefits for their employees needs to be recorded as compensation of employees. Employers' social contributions may be either actual or imputed. They are intended to secure for their employees the entitlement to social benefits should certain events occur, or certain circumstances exist, that may adversely affect their employees' income or welfare—sickness, accidents, redundancy, retirement, etc. Social benefits are described in chapter VIII, and also in annex IV at the end of this manual." (SNA 1993, paragraph 7.43).

"These consist of social contributions payable by employers for the benefit of their employees to social security funds, insurance enterprises or other institutional units responsible for the administration and management of social insurance schemes. Although they are paid by the employer directly to the social security fund or other scheme, the payments are made for the benefit of the employees. Accordingly, employees should be treated as being remunerated by an amount equal to the value of the social contributions payable. This imputed remuneration is recorded in the generation of income account as a component of compensation of employees. Employees are then recorded as paying social contributions of equal value as current transfers to social security funds, other schemes, etc., in the secondary distribution of income account." (SNA 1993, paragraph 7.44).

Table 10**Treatment of employment benefits, reference year 2000**

SNA income and transaction income	Value
	billions of dollars
SNA income	
Employers' contributions to employment insurance	11.0
Employers' contributions to CPP and QPP	12.0
Employers' contributions to pensions	13.2
Employers' contributions to workers' compensation	6.5
Employers' contributions to welfare benefits	13.9
Retirement allowances	4.8
Total income	61.4
Transaction income	
Employers' contributions to welfare benefits	13.9
Retirement allowances	4.8
Total income	18.7

Notes: CPP: Canada Pension Plan; QPP: Quebec Pension Plan; SNA: System of National Accounts.
 Figures may not add up to totals shown because of rounding.

In the CSNA, contributions to social insurance, such as the Canada Pension Plan (CPP) and the Quebec Pension Plan (QPP) (\$12.0 billion), Employment insurance (\$11.0 billion), and workers' compensation (\$6.5 billion), are shown as transfers back to government. In order to reconcile the macro concept of household income with the household budget, these contributions are removed from both the income and the outlay sides of the account. This would affect only net saving. For the same reasons, employers' contributions to pensions are also removed from income. Benefits received under the above programs constitute current income and are included in the income and outlay account of households.

7.3 Owner-occupied dwellings

One of the national accounting conventions that clearly impede micro-macro integration relates to the treatment of owner-occupied dwellings (Ruggles and Ruggles 1986, p. 251-252). The SNA shows the ownership of owner-occupied homes as an industry. Under this convention, owner-occupied homes are treated as if they were rented to their owners at a competitive rental rate by this fictive industry, which receives the rental incomes, pays mortgage interest, operation, and maintenance expenses and taxes, sets aside funds for depreciation, and pays the rest to households as net rental income. While this treatment may be expedient for many purposes, it has significant drawbacks when national accounts data are used to analyze household behaviour and household savings (see Ruggles and Ruggles 1992 and Webb 1980). Essentially, this is a consequence of removing housing from the domain of the household and classifying it as a business industry. Unless a number of complex adjustments are made, this distorts the analysis of homeowner decisions with respect to borrowing, investment, and saving when aggregative household account data are used. In addition, the existing treatment includes the depreciation of homeowners' property as part of the imputed rent of owner-occupied dwellings, which is considered a consumption expenditure for the current period. Families typically pay for repair and maintenance of their dwellings as they arise. The treatment understates the amount that households actually put aside for future consumption by classifying it as an amount consumed in the current period. Gross saving shown in the SNA sector accounts (which include capital cost allowance) shows the appropriate amount of savings available to households.

An appropriate reconciliation between the macro and micro sides is to dissolve the housing industry and to allocate the current costs of home ownership (excluding depreciation) to households as suggested by Ruggles and Ruggles (1986). This method consists of moving the expenses of the housing industry, such as repairs, mortgage interest, insurance, maintenance, and property taxes, to the household sector, where they are shown as household expenses. Capital consumption allowance of housing, a major expense at \$14 billion in 2000, is no longer charged as a current household expense. As Table 11 shows, household incomes will be reduced by the amount of the imputed rental income of owner-occupied dwellings (net rental income of unincorporated business) by about \$24 billion in 2000. Household outlays will be reduced by \$38.4 billion as depreciation and mixed income are no longer considered costs. This treatment will not affect gross saving but will affect net saving.

Table 11

Treatment of cost of housing, reference year 2000

SNA expense and transaction expense	Value
	billions of dollars
SNA expense	
Repair and maintenance	6.1
Property taxes (less subsidies)	14.0
Mortgage interest paid	24.1
Capital cost allowance	14.0
Imputed mixed income, owner-occupied dwellings	24.0
Total imputed rent	82.2
Transaction expense	
Repair and maintenance	6.1
Property taxes (less subsidies)	14.0
Mortgage interest paid	24.1
Total cost to households	44.2

Notes: SNA: System of National Accounts. Figures may not add up to totals shown because of rounding.

7.4 Insurance income and pension income

Another national accounting treatment that differentiates micro and macro concepts relates to life insurance and pensions. National accounting conventions have always treated the reserves of these institutions as if they were assets of persons who ultimately receive benefit payments. It follows from this principle that any returns earned on invested assets of these funds¹⁰ are recorded in the national accounts as income of households in the current period. It also follows that benefits (e.g., annuity payments, policy dividends) paid to households are not recorded as households' income: they appear only as expenses of life insurers and pension funds. In addition, lump-sum life insurance settlements paid to households do not explicitly appear in the accounts because they are treated as intra-sectoral transfers, whereby insurance assets are consolidated with all other assets within the household sector.

By contrast, data compilation at the micro level follows business accounting conventions. Households, which are unaware of investment incomes of insurance and pension funds, simply report their receipts from pension plans, annuities, life insurance claims, and dividends as their current income. They similarly consider gross premium payments as the cost of acquiring the

10. Investment returns on pension funds assets in the form of interest and dividend are considered the income of beneficiaries in the national accounts. In the case of life insurers, this is limited to actuarial reserves and other policy-holder assets, excluding the companies' own equity.

security of insurance and report these payments as their outlays. Households plan their spending, investment, and saving decisions in light of these incomes and outlays.

In order to make the macro accounts consistent with the household budget reflected in the micro data, investment returns originating from insurance reserves and pension assets are removed from the income side of the household sector; they are replaced by dividend income, annuity receipts, pension benefits, and life insurance claims received (Table 12).

Table 12
Treatment of pension incomes, reference year 2000

SNA income and transaction income	Value
	billions of dollars
SNA Income	
Investment income of life insurance and fraternal	10.9
Investment income of pension fund	35.0
Premium supplement, non-life insurance	5.0
Investment income, non-profit institutions	0.9
Total pension income	51.8
Transaction income	
Benefit paid to individuals under life insurance and annuities	18.5
Benefit paid by private and public pension funds and other pension income	39.0
Total benefits received	57.5

Notes: SNA: System of National Accounts. Figures may not add up to totals shown because of rounding.

In order to account for household expenditure on insurance, payments of life insurance premiums should be shown as an outlay. However, this should include only premium payments for life insurance products, such as term life insurance actually consumed by the household, and should exclude premiums for insurance plans with a saving feature such as endowment insurance.¹¹ While premiums paid for term life insurance are unambiguously household expenses at par with premiums for fire and casualty insurance that purchase risk coverage, certain other types of life insurance (endowment insurance and some forms of universal insurance) contain an investment component that is managed as an investment portfolio by insurance companies. These investment components have attributes that make them close substitutes of tax-sheltered savings plans and savings accounts. Consequently, it is necessary to separate the data on life insurance premiums into data on pure premiums and data on investment contributions, and to treat these two types of data accordingly. This separate treatment has not been implemented in this paper; this has resulted in a slight understatement in household savings.

In keeping with the same rationale, household contributions toward pensions (paid to pension managers, life insurers, etc.) are not shown as an outlay of the household because they are a form of saving that increase household assets.

11. Wherever possible, payments toward life insurance plans that increase the equity of the policy-holder, such as endowment insurance, are not treated as an outlay on consumption of services, since they augment assets which households receive at a later date or from which households can borrow. In the National Accounts, consumers are shown as paying a fee to operators of pension funds based on the assets under management, as is the case for investment (mutual) funds. These fees remain as outlays of households.

7.5 Insurance other than life insurance

The treatment of insurance other than life insurance (property insurance and casualty insurance) in the accounts is another area where existing conventions necessitate an adjustment. In accordance with conventions recommended in SNA 1993, households' expenditure on insurance other than life insurance (e.g., automobile, property, accident, and sickness) is measured by means of a cost-of-service concept. Premiums and claims appear on neither the income side nor the expense side of the accounts. Instead, a cost-of-service appears as the outlay of consumers of insurance, which includes premiums paid less adjustment expenses less claims received by households plus the investment income (premium supplement) of policy reserves. Consequently, household expenses shown in the SNA sector accounts are net amounts that are smaller than the actual (gross) outlays on premiums. The investment income associated with this cost-of-service is also entered on the income side of the SNA sector accounts. Although insurance settlements (claims) received by households finance their expenditures on goods and services, they are added only to income, but are shown as part of depreciation in the sector accounts.

At the micro level, data from SHS household expenses exclude both income from settlement of insurance claims and the expenses of goods and services financed by them. The survey records only the deductible portion of expenditures covered or financed by insurance as a household expense. To reconcile the household accounts with the actual budget of the household, the imputation for cost-of-service is removed from personal expenditure, and the full amount of premiums paid by the sector is shown as an outlay. On the income side, insurance settlements received by households are added to income while the same amount is removed from the sector's capital cost allowance.¹²

7.6 The treatment of interest

The treatment of interest income and interest expense in the national accounts differs significantly from the way in which households perceive and report on these items. The CSNA income and outlay account of the households sector shows total interest and other property incomes of households. In addition to total interest received, the CSNA includes an imputation for FISIM (financial intermediation services indirectly measured) on deposits of households held by financial institutions, as recommended by SNA 1993. This imputation, \$6.7 billion in 2000, is the difference between what the household sector actually received and the opportunity cost of those funds to deposit-taking institutions. An identical amount is shown as personal expenditure of households on financial services. On the borrowing side of financial transactions, the interest paid by households is divided into two parts: imputed loan interest and pure interest. The imputed loan interest is shown as consisting of two components: an expenditure by households (\$7.5 billion in 2000) and a pure interest payment (\$11.7 billion in 2000) to the financial sector.

In contrast to the transfers and imputations provided for under the SNA, the micro data on household spending show gross interest (and dividends) income from domestic and foreign sources and gross principal-and-interest payments on consumer loans and mortgages (including principal-residence mortgages). Interest income is also available from income tax data. In making the SNA and the micro data sources consistent, the authors' objective is not only to accurately reflect the household budget by showing the actual net interest income (expense), but also to show gross interest (and dividend) income on the income side and gross interest expenses on the cost side, so that each side can be matched with the desired data on social attributes of households. To make these modifications in the household accounts data,

12. In the SHS, reimbursed expenditures such as work-related expenses or expenditures covered by insurance are excluded from estimates and, where an insurance settlement was used to repair or replace property, the survey includes only the deductible amount paid for an item.

the imputation for financial services (FISIM) on deposits previously shown as part of income is removed. As well, all FISIM imputations are eliminated from the expenditure side of the account and replaced with gross payments of interest on consumer credit (i.e., all interest payments of the sector except those in respect of mortgages on owner-occupied housing). As mentioned in Subsection 7.3, homeowners' mortgage interest is added to the expenses side of households and the CSNA industry known as "Owner-Occupied Dwellings" is dissolved. These adjustments reconcile both the concepts and the values in the household sector accounts with those of micro data from the expenditure survey.

7.7 The treatment of employees' contributions to pensions

Households' contributions to pensions sponsored by employers or managed by insurance companies are (implicitly) included in savings in this study, rather than being treated as an outlay of households. The reason for this treatment is that pension assets belong to households, that they are generally portable as employees change jobs, support households' borrowing power, and relieve them of the necessity of voluntarily saving for retirement through other vehicles such as tax shelters or other forms of retirement savings plans. However, this may not be the most appropriate treatment, although the appropriateness of such treatment depends on the objectives of the analysis. If not appropriate, one would simply adjust the expense and saving figures accordingly.

The case of contributions to social insurance schemes such as the CPP and the QPP is more straightforward. Household contributions to these schemes are included as outlays (as is current practice under the CSNA) rather than as savings under present regimes. Contributions to these social insurance schemes have many of the attributes of taxes that support social safety nets: namely, they are (mostly) unfunded, offer terms and conditions that can be changed unilaterally by governments as policies change, and involve no legal or contractual obligations. As some of these conditions change, it may be more appropriate to include these payments in household savings. For instance, an increasing proportion of CPP assets are funded and invested in marketable securities. As Canadians begin to view these investments as their retirement savings, household contributions shown as outlays should be reduced in order to allow for an increase in corresponding savings.

7.8 The treatment of holding gains

The SNA 1993 defines income as "[...] the maximum amount that a household, or other unit, can consume without reducing its real net worth. However, the real net worth of a unit may be changed as a result of the receipt or payment of capital transfers and as a result of real holding gains or losses that accrue on its assets or liabilities" (SNA 1993, paragraph 8.15). Holding gains that result from changes in the prices of assets (fixed and financial) are excluded from income under the SNA because income is measured on the same basis as production. Following this definition, household receipts that originate from capital gains when they dispose of financial or non-financial assets are not reflected on the income side of the SNA sector account, even though the income tax paid on these gains is shown as an expense in calculating disposable income. In addition, goods and services purchased by households with capital gains proceeds appear on the expense side as personal expenditures. The actual saving by the sector, which is a residual of income over outlay, is thus understated by the amount by which consumption is financed through this source.¹³ The Expert Group on Household Income

13. "One specific source of household economic resource, which is increasingly important in OECD countries, is realized holding, or capital, gains. Selling off assets that have risen in value can sometimes enable a household to meet its everyday needs for food, clothing, shelter, and the like. This is particularly the case among the aged who may have intentionally built up assets during their working lives in order to draw them down after retirement—in other words they are smoothing their incomes over their lifetimes" (Canberra Group 2001, p. 67).

Statistics (the Canberra Group), which deliberated revisions to the SNA 1993, acknowledged in its 2001 report that households' use of these proceeds to finance consumption argues in favour of their inclusion in income. The Canberra Group recognized also that "there are good reasons in some areas for departing from the recommendations embodied in SNA93, reflecting the different purposes of the statistics to be compiled" (Canberra Group, 2001, p. 16) and recommended that capital gains and losses should be treated as a memorandum item which may be added to income for purposes of certain analyses (Canberra Group, p. 17). The report of the Canberra Group also recognized that certain features of macro statistics are not suitable for microeconomic purposes, such as for analysis of income distribution, because households with higher income levels receive a disproportional share of capital gains income.¹⁴

The household account presented in this paper uses the transaction as the basis for recognition of incomes and outlays of the household sector. As such, it includes proceeds from all sources, including realized capital gains. The SNA 1993 recognizes that the use of SAM for general equilibrium modeling and policy analysis requires that it adapt to the specific needs of these applications. The SNA 1993 affirms that "if one thinks that [...] capital gains are directly and to a large extent reflected in final consumption expenditure, these values could be booked as an incoming on the (secondary) distribution of income account" (SNA 1993, paragraph 20.130). This is the approach that the authors take in this paper. Unfortunately, data are available only on taxable capital gains at the present time. It would be appropriate to also include here the proceeds from other realized capital gains, such as the sale of principal residences (a non-taxable income in Canada).

14. "Income distribution statistics are primarily concerned with a particular set of micro-economic issues and require the construction of statistics which reflect the circumstances of individual households. The SNA is concerned with macro-economic issues and the household sector is but one sector of interest. It follows, for example, that some recommendations in SNA93 that are targeted at non-household sectors but impact on the household sector in aggregate may have to be treated differently in compiling household income distribution statistics" (Canberra Group 2001, p. 16).

Table 13
Transforming the SNA sector account into a SAM household account, 2000 —
Part 1

SNA sector account	Line	Value
		billions of dollars
Income		840.4
Wages, salaries and supplementary labour income	1	545.2
Wages and salaries	2	483.9
Supplementary labour income	3	61.3
Employers' contributions, CPP, QPP, EI, workers' compensation, pension	4	42.7
Employers' contributions, welfare benefits	5	13.9
Retirement allowances paid to employees	6	4.8
Unincorporated business net income	7	66.2
Imputed income, owner-occupied dwellings	8	24.0
Mixed income from all other industries	9	42.2
Interest, dividends and miscellaneous investment receipts	10	111.7
Gross interest income	11	35.9
Distributed dividends of corporations	12	18.9
Not applicable ¹	13	...
FISIM on deposits	14	6.7
Income supplement, non-life insurance	15	5.0
Investment income, non-profit institutions	16	0.9
Investment income, life insurance	17	10.9
Royalties	18	15
Investment income of pension funds	19	35.0
Not applicable ¹	20	...
Current transfers from government	21	110.5
Employment insurance benefits	22	9.6
Social security and other benefits to persons	23	92.9
Grants to non-profit organizations	24	8.0
Current transfers from corporations	25	15
Current transfers from non-residents	26	2.4
Not applicable ¹	27	...
Outlay		810.5
Personal expenditure on goods and services	28	596.0
Imputed rent, owner-occupied dwellings	29	82.6
Imputation for financial services (FISIM)	30	11.2
Insurance cost-of-service (including housing)	31	17.0
Operating expenditures of non-profit organizations	32	15.8
Other personal expenditure	33	466.4
Current transfers to government	34	200.8
Income taxes	35	144.0
Contributions to social insurance (EI, CPP, QPP, workers' compensation)	36	49.8
Other current transfers	37	7.1
Current transfers to corporations (transfer portion)	38	117
Current transfers to non-residents	39	19
Saving	40	29.9
Net disposable income	41	639.6
		percent
Saving rate		4.7
		billions of dollars
Gross saving and capital transfers	42	60.3
Saving, net	43	29.9
Capital consumption allowances	44	30.2
Net capital transfers	45	0.2
Government	46	-5.3
Non-residents	47	5.5

1. There is an account at this line in the SAM household account (Table 14).

Notes: CPP: Canada Pension Plan; EI: employment insurance; FISIM: financial intermediation service indirectly measured; QPP: Quebec Pension Plan; SAM: Social Accounting Matrix; SNA: System of National Accounts. The SNA sectoral account includes persons, unincorporated businesses and non-profit institutions serving households. Figures may not add up to sums shown because of rounding.

Table 14
Transforming the SNA sector account into a SAM household account, 2000 —
Part 2

SAM household account	Line	Value
		billions of dollars
Income		814.2
Wages, salaries and supplementary labour income	1	502.5
Wages and salaries	2	483.9
Supplementary labour income	3	18.6
Not applicable ¹	4	...
Employers' contributions, welfare benefits	5	13.9
Retirement allowances paid to employees	6	4.8
Unincorporated business net income	7	42.2
Not applicable ¹	8	...
Mixed income from all other industries	9	42.2
Interest, dividends and miscellaneous investment receipts	10	148.5
Gross interest income	11	35.9
Distributed dividends of corporations	12	18.9
Life insurance policyholder dividends	13	17
Not applicable ¹	14	...
Not applicable ¹	15	...
Not applicable ¹	16	...
Life insurance and annuity benefits received	17	18.5
Royalties	18	15
Benefits from registered pension plans	19	39.0
Taxable capital gains	20	310
Current transfers from government	21	102.5
Employment insurance benefits	22	9.8
Social security and other benefits to persons	23	92.9
Not applicable ¹	24	...
Current transfers from corporations	25	15
Current transfers from non-residents	26	2.4
Non-life insurance settlements	27	18.7
Outlay		740.8
Personal expenditure on goods and services	28	547.9
Mortgage interest, owner-occupied dwellings	28a	24.1
Shelter expenses (maintenance and property taxes, owner-occupied dwellings)	28b	18.8
Not applicable ¹	30	...
Insurance gross premiums (including housing)	31	32.5
Contributions and fees, non-profit organizations	32	6.0
Other personal expenditure	33	466.4
Current transfers to government	34	171.8
Income taxes	35	114.0
Employees' only contributions to social insurance (EI, CPP, QPP, workers' compensation)	36	20.7
Other current transfers	37	7.1
Gross interest on consumer credit — Transfer portion	38a	11.7
Gross interest on consumer credit — Administrative portion	38b	7.5
Current transfers to non-residents	39	19
Saving ²	40	73.4
Disposable income	41	642.5
		percent
Saving rate		11.4
		billions of dollars
Gross saving and capital transfers	42	90.4
Saving, net	43	73.4
Capital consumption allowances, excluding housing	44	18.8
Net capital transfers	45	0.2
Government	46	-5.3
Non-residents	47	5.5

1. There is an account at this line in the SNA sector account (Table 13).

2. Includes taxable capital gains income for the reference year.

Notes: CPP: Canada Pension Plan; EI: employment insurance; FISIM: financial intermediation service indirectly measured; QPP: Quebec Pension Plan; SAM: Social Accounting Matrix; SNA: System of National Accounts. The SNA sectoral account includes persons, unincorporated businesses and non-profit institutions serving households. Figures may not add up to sums shown because of rounding.

8 A transaction-based integrated household account

Tables 13 and 14 show at an aggregative level how the existing CSNA account for the household sector is modified in order to be integrated with the survey data on household spending. The household account shows \$814.2 billion in income in 2000 (Table 14), rather than \$840.4 billion as shown in the National Economic Accounts (Table 13). The household income now excludes \$42.7 billion in employers' contributions to employee benefits (see Table 10) and excludes \$24.0 billion in a national accounting imputation of net income for owner-occupied dwellings (see Table 11). Removing the incomes of non-profit organizations (contributions of government and business) provides an additional reduction of \$8.0 billion. However, the new estimate of income includes \$1.7 billion in life insurance dividends, \$31.0 in capital gains income (as reported by the CRA), \$16.7 billion in insurance claim settlements, and larger estimates for life insurance and annuity benefits (\$18.5 billion) and for pension benefits (\$39.0 billion).

On the expense side, the sector's outlays are only \$740.8 billion, rather than \$810.5 billion as shown in CSNA accounts. Firstly, a key difference with the CSNA sector account is that outlays on housing are limited to actual expenses of maintaining owner-occupied dwellings, including taxes and mortgage interest, which add up to \$42.9 billion, compared to imputed rent at \$82.6 billion. Secondly, the imputation for financial services (FISIM) is removed, but outlays now include gross interest payment, compared with the existing sector accounts, which include only the transfer portion of interest. Thirdly, outlays that represent contributions to social insurance are significantly smaller, at \$20.7 billion, because only the portion contributed by employees is shown as an expense of the household sector; this leaves out the portion paid out by employers (\$29.0 billion). Finally, outlays on life insurance and on insurance other than life insurance are larger (\$32.5 billion versus \$17.0 billion) under the transaction approach; this accounts for the full value of policy premiums (excluding annuities).

The amount of savings generated by the sector is redefined in that it includes capital gains reported to the Canada Revenue Agency as taxable income. In accordance with this approach, income should also include non-taxable capital gains, such as gains in tax-sheltered assets (e.g., RRSPs). The present study overlooks these considerations, since no consistent estimates are available. Nonetheless, net savings (excluding depreciation) are \$73.4 billion, compared to \$29.9 billion; this result is consistent with national accounting conventions.

Disposable income, the residual of incomes over transfers to governments, is \$642.5 billion, yielding a savings rate of 11.4%, compared to the rate of 4.7% consistent with SNA conventions.

Table 15 presents a summary of incomes and expenses by income quintile as well as social statistics relevant to each quintile. The data by quintile are based on the SHS, whereas the totals are derived from national accounts data modified according to concepts and procedures proposed in this paper, in order to ensure their integration with micro data on households.¹⁵

To better facilitate the analysis of transfers by income level, transfers to governments and transfers from governments are shown by level of government for each quintile. The net amounts of these transfers are also shown in a subsequent line of the table. While the three levels of government received transfers of \$171.8 billion from households, they transferred \$102.5 billion to households; this led to a net transfer to governments of \$69.2 billion. The table also shows net savings of \$73.4 billion, or 11.4 % of households' disposable income.

15. The data on capital gains income is obtained from CRA income tax data.

Table 15**Household sector account by income quintile, reference year 2000**

Summary statistics	Total, all quintiles	Lowest quintile (\$0 to \$21,216)	Second quintile (\$21,216 to \$37,000)	Third quintile (\$37,000 to \$55,760)	Fourth quintile (\$55,760 to \$82,402)	Highest quintile (\$82,402 or more)
billions of dollars						
Income	814.2	50.0	88.7	128.5	183.7	363.3
Income excluding government transfers	711.7	18.9	59.8	109.8	169.8	353.4
Employment income	502.5	7.4	33.9	76.4	129.8	255.1
Self-employment income	42.2	0.9	3.2	6.2	9.2	22.7
Taxable capital gains	31.0	0.5	0.9	1.9	2.1	25.6
Investment income	58.0	2.8	6.8	8.6	11.4	28.4
Retirement income	59.9	5.5	12.0	13.4	13.3	15.6
Other income	18.2	1.9	3.0	3.2	4.1	6.0
Gross transfers from governments	102.5	31.1	28.8	18.7	13.9	10.0
Transfers from federal government	78.7	22.4	22.9	15.7	10.6	7.1
Transfers from provincial government	20.6	7.5	5.2	2.6	2.9	2.5
Transfers from municipal government	3.2	1.2	0.8	0.4	0.5	0.4
Outlay	740.8	50.4	86.7	130.7	178.9	294.1
Personal expenditure	547.9	47.1	73.5	102.4	131.3	193.6
Gross interest payments, transfers out of Canada	21.1	0.8	2.1	4.0	5.8	8.4
Gross transfers to governments	171.8	2.5	11.1	24.3	41.8	92.1
Transfers to federal government	110.9	1.2	6.9	15.8	27.4	59.6
Transfers to provincial government	60.1	1.2	4.1	8.4	14.3	32.2
Transfers to municipal government	0.7	0.1	0.1	0.1	0.2	0.2
Net government transfers	-69.2	28.6	17.8	-5.6	-27.9	-82.1
Personal disposable income ¹	642.5	47.6	77.6	104.1	141.9	271.3
Net saving	73.4	-0.4	2.0	-2.3	4.8	69.3
percent						
Saving as share of disposable income	11.4	-0.8	2.6	-2.2	3.4	25.5
dollars						
Saving per household	6,463	-172	881	-995	2,121	30,481

1. Definitions of income and outlay have been slightly modified because transfers to non-residents are netted out of income.

Notes: Figures may not add up to sums shown because of rounding. The totals for all quintiles are derived from national accounts data, and the results by quintile are based on data from the Survey of Household Spending.

Table 16 analyzes the results of Table 15, focusing on the relationship between income quintiles, transfers, and savings. SHS data for the first quintile show that about 91% of these households have no full-time wage earner, that such households consist mostly (62.3%) of single individuals. The average size of households in the first quintile is 1.5, compared to 2.5 for all quintiles. While households in the first quintile make up 20% of Canadian households, they earn only 2.7% of non-transfer or earned income. When one takes into account government transfers from all sources and all levels of government (these households receive more than 30% of all government transfers), the combined incomes of these households rise to only 6.1% of the household sector. Since their outlays account for 6.8% of those of the sector, their saving is negative (-\$0.4 billion) (see Table 15). This result is not surprising given that these households account for 20% of households but receive only 7.4% of the sector's disposable income.

The second quintile has a slightly larger household size and includes a greater number of full-time earners; half of households in this quintile are made up of husband-wife family units. The non-transfer income of households in this quintile is somewhat larger, at 8.4% of that of the sector, but these households require more than 28% of all government transfers in order to raise their incomes to 10.9% of those of all households. Personal disposable income for this

quintile was 12.1% of that of all households: the savings of households in this quintile totaled \$2.0 billion in 2000 (Table 15).

The third quintile has very different attributes from those of the first two. The family size of households in this quintile is slightly larger than the average; they have more full-time earners than the average household, consist mostly (64%) of husband-wife family units, and paid \$5.6 billion more in government transfers than they received in 2000 (see Table 15). However, this made them net borrowers of \$2.3 billion, or about \$1,000 per household, in 2000. This finding is discussed in greater detail in the Appendix (Subsection 12.1).

In the fourth quintile, families are larger (3.05 persons), and about one-third have two or more full-time wage earners. This quintile comprises predominantly (78.2%) husband-wife families with average incomes of \$80,900, or 14% higher than the national average. These households receive a larger share of non-transfer income (23.9%) than their sheer number accounts for (20%). While they are recipients of 13.6% of all government transfers, they pay 24.4% of all transfers to governments. They earned about 22% of all personal disposable income in 2000. Nevertheless, they accounted for only 6.6% of all household savings. On average, these households saved \$2,121, or 3.4% of their disposable income, during 2000 (see Table 15).

Finally, the fifth quintile, whose average income is \$159,900 (123% higher than the average), has more units with two or more full-time earners (55.0%) than units with a single full-time earner (37.2%); this quintile had a family size much larger than the average for all quintiles (3.47 compared to 2.57). These households accounted for almost half of all non-transfer income. This group pays more than half of all government transfers (53.6%) and receives only 9.7% of transfers paid to the sector. In 2000, this quintile's net transfer to governments was \$92.1 billion, a figure larger than the net transfer from all other households combined (see Table 15). These households saved more than 25% of their disposable income, or \$30,481 per household, in 2000. In fact, households in this income bracket saved more than the rest of households in Canada in 2000.

The household income includes declared capital gains incomes of approximately \$31 billion for 2000, a year in which households' gains from investments in equities were probably at their peak. It is important to know to what extent these incomes affect the savings picture described above because extraordinary gains in that year were much larger than in years before or since reference year 2000. A comparison of savings with and without declared realized capital gains is shown in Table 17. Excluding declared taxable income from capital gains (and gains within tax shelters, plus unrealized gains), total savings of about \$42 billion out of (a smaller) disposable income indicate an average savings rate of 6.9%. Savings rates for all quintiles are lower than in the case of capital gains income, with the first and the third quintile showing larger rates of dissaving. For the highest income quintile, the savings rate out of disposable income would be 17.8%, versus 25.5% if capital gains were taken into account. The finding that savings are made predominantly by the 2.3 million households in the highest income quintile remains unchanged.

Table 16
Analysis of household sector account by income quintile

Summary statistics	Total, all quintiles	Lowest quintile (\$0 to \$21,216)	Second quintile (\$21,216 to \$37,000)	Third quintile (\$37,000 to \$55,760)	Fourth quintile (\$55,760 to \$82,402)	Highest quintile (\$82,402 or more)
number of persons						
Average household size	2.57	1.53	2.19	2.62	3.05	3.47
percent						
Households with no full-time earners	41.0	91.3	59.9	31.2	14.7	7.8
Households with one full-time earner	37.9	8.2	36.6	53.9	53.8	37.2
Households with two or more full-time earners	21.1	...	3.5	14.9	31.5	55.0
One-person households	24.7	62.3	29.3	19.0	9.1	3.6
Lone-parent households	9.3	12.8	13.1	10.1	7.2	3.1
Husband-wife households	60.0	20.2	50.3	64.0	78.2	87.4
thousands						
Estimated number of households	11,362	2,272	2,272	2,272	2,272	2,272
thousands of dollars						
Average household income from SAM	71.7	22.0	39.0	56.5	80.9	159.9
percent						
Average household income from SAM (\$ '000)	100	0.3	54.5	78.9	112.8	223.1
Income	100	6.1	10.9	15.8	22.6	44.6
Income excluding government transfers	100	2.7	8.4	15.4	23.9	49.6
Gross transfers from governments	100	30.3	28.1	18.2	13.6	9.7
Outlay	100	6.8	11.7	17.6	24.2	39.7
Outlays excluding transfers to governments	100	8.4	13.3	18.7	24.1	35.5
Gross transfers to governments	100	1.4	6.4	14.2	24.4	53.6
Net government transfers	100	-41.4	-25.7	8.1	40.3	118.6
Personal disposable income	100	7.4	12.1	16.2	22.1	42.2
Net saving	100	-0.5	2.7	-3.1	6.6	94.3

Notes: SAM: Social Accounting Matrix. Figures may not add up to sums shown because of rounding.

Table 17
Impact of capital gains on household sector savings, reference year 2000

Net savings, with or without capital gains	Total, all quintiles	Lowest quintile (\$0 to \$21,216)	Second quintile (\$21,216 to \$37,000)	Third quintile (\$37,000 to \$55,760)	Fourth quintile (\$55,760 to \$82,402)	Highest quintile (\$82,402 or more)
Including capital gains						
Net saving (billions of dollars)	73.4	-0.4	2.0	-2.3	4.8	69.3
Share of quintiles (percent)	100.0	-0.5	2.7	-3.1	6.6	94.3
Saving as share of disposable income (percent)	11.4	-0.8	2.6	-2.2	3.4	25.5
Saving per household (dollars)	6,463	-172	881	-995	2,121	30,481
Excluding capital gains						
Net saving (billions of dollars)	42.5	-0.9	1.1	-4.2	2.8	43.7
Share of quintiles (percent)	100.0	-2.1	2.5	-9.8	6.5	102.9
Saving as share of disposable income (percent)	6.9	-1.9	1.4	-4.1	2.0	17.8
Saving per household (dollars)	3,738	-388	466	-1,834	1,217	19,230

Note: Figures may not add up to sums shown because of rounding.

9 Second application: Breakdown of employee compensation by social attributes

This part of the paper expands on the labour compensation of employees with respect to the "Generation of income" account (row 3a in Tables 5, 6, and 7). The labour compensation data are shown by industry and cross-classified by social characteristics—age, gender, and educational attainment—in order to explain differences in employee compensation. Employee compensation in the national accounts consists of wages and salaries of employed persons plus supplementary income, which includes employment benefits paid by the employer.

Tables 24, 25, 26 and 27 in the Appendix (Subsection 12.2) present labour compensation for 20 broad industry groups in the business sector of the Canadian economy. The business sector excludes general government and non-profit institutions serving households (NPISHs).¹⁶ Using data on hours worked corresponding to the employment income, Tables 28, 29, 30 and 31 in the Appendix (Subsection 12.3) present the hourly compensation of employees in each of these industries for reference year 2000. The labour compensation data represent the reconciliation of data collected from payroll surveys, labour force surveys, and administrative data. These sources are integrated at Statistics Canada¹⁷ with data on employee attributes by establishment collected primarily from the Survey of Employment, Payrolls and Hours.

Labour force attributes for which labour compensation is shown are gender, seven worker-age brackets, and six successive levels of education. When one combines the three groups of attributes, labour compensation is shown for 84 gender/age/education combinations; this allows for the analysis of how labour compensation varies among attributes and among industries.

Tables 18 and 19, below, are an excerpt of the complete results presented in Subsection 12.2 of the Appendix. They reveal that about one-quarter of paid labour compensation in Canadian industries (excluding government and NPISHs) is received by women. They show, however, that this figure varies from as little as 7% in "Forestry and logging" to about 50% in the "Finance, insurance and real estate" group, and reaches almost 80% in "Health care and social assistance." It is easily evident from the tables that most of the compensation received by women in Canada goes to the 35-to-44 age bracket and that almost 60% being received by 25-to-44-year-old paid workers. These tables also show that a similar pattern prevails among men, although the age brackets that account for 60% of labour compensation are those from 35 to 54 years of age; this is somewhat older than the age group of women that come under this category.

While these results answer a wide range of queries pertaining to wages, salaries, and benefits, a more powerful and revealing picture of earnings differentials emerges from analysis of average labour compensation per hour, obtained by dividing annual compensation (Subsection 12.2), by similar tables of data on hours worked by the same employees. Complete results for average labour compensation per hour are presented in Subsection 12.3. Tables 18 and 19 below are an excerpt of Tables 28, 29, 30 and 31 (Subsection 12.3); they show that, in 2000, employees received an average of \$21.50 per hour for work outside the general government and the non-profit sector of the Canadian economy. Workers in the "Utilities" industries, owing to their higher technical qualifications, received more than \$35 an hour, a 65% advantage; workers in "Finance" saw a wage of more than \$32 an hour, a 51% advantage.

Tables 20 and 21 show that, while women's average hourly compensation is about 82% of that of men in Canadian industries, these figures vary from lows of about 78% in the "Construction"

16. The government sector and NPISHs are excluded from the present matrix because the authors do not have data on comparable attributes for these groups.

17. Statistics Canada, Economic Analysis Division.

and "Manufacturing" industries to highs of 96% in "Educational services" and to 98% in "Health care and social assistance." Importantly, the latter two industries employ a very high proportion of women.

Analysis of the tables in Subsection 12.3 of the Appendix also reveals that women's highest earning years are 35 to 44, when their earnings per hour are 12% higher than their lifetime average (see Tables 20 and 21). For men, this peak occurs in the 45-to-54 bracket, when they earn about 18% more than the lifetime average for their gender. At 65 years and over, women earn about 68% of their lifetime average hourly compensation. Men in this age bracket earn about 59% of the lifetime average for their gender. Furthermore, while men in the 55-to-64 bracket still earn 4% more than their life-time average hourly compensation, women's compensation in that age group stands at 4% below their lifetime average.

Tables 20 and 21 also shed light on how educational attainment may affect employees' hourly compensation. For example, the first column of these tables illustrates the benefit of a postgraduate degree with respect to an employee's earnings, compared to the average for his or her age group for all industries. The premium for women varies from 8% for the 65-and-over group to 49% for the 18-to-24 age group. These figures show that those with a postgraduate degree earn up to 49% more in hourly compensation than their peer group. In the highest-earning bracket, namely the 35-to-44 age group, a postgraduate degree confers a 45% earning advantage whereas a bachelor's degree provides a 37% premium over the average. For men, a postgraduate degree boosts hourly earnings by only 31% over the average during their highest income earning years of 45 to 54 years of age, whereas the advantage is as high as 36% for the younger groups, 25-to-34 and 35-to-44 years of age, which have slightly lower earnings as a rule; this shows the diminishing returns to education in higher income brackets. The advantage conferred by a bachelor's degree is highest for the 18-to-24 age group and tends to decline as a worker ages. Within every age group, having both a bachelor's degree and a postgraduate degree tends to raise the earnings of women by a greater amount above the average wage than the earnings of men.

Table 18**Labour compensation in 2000 — Part 1**

	All industries	Crop and animal products	Forestry and logging	Fishing, hunting and trapping
Total	545,204	3,305	2,934	263
Female	126,172	822	196	31
Aged 25 to 34	33,356	143	44	8
0 to 8 school years	275	8	1	1
Some high school	1,422	17	2	1
High-school graduate	5,996	35	10	2
Postsecondary graduate	14,757	69	21	4
Bachelor's degree	8,374	12	9	0
Postgraduate degree	2,531	2	0	0
Aged 35 to 44	41,129	261	70	7
Postgraduate degree	636	20	1	1
Some high school	3,052	41	9	1
High-school graduate	10,624	72	17	2
Postsecondary graduate	18,490	109	35	3
Bachelor's degree	6,148	17	7	0
Postgraduate degree	2,178	3	1	0
Male	287,307	2,483	2,739	232
Aged 35 to 44	94,599	726	926	51
0 to 8 school years	1,915	66	75	9
Some high school	9,823	165	253	15
High-school graduate	19,210	193	213	9
Postsecondary graduate	43,107	265	336	19
Bachelor's degree	13,532	29	47	0
Postgraduate degree	7,012	6	2	0
Aged 45 to 54	72,253	488	708	61
0 to 8 school years	3,041	78	106	17
Some high school	7,828	111	174	16
High-school graduate	14,111	98	132	5
Postsecondary graduate	31,732	169	249	21
Bachelor's degree	9,633	27	44	1
Postgraduate degree	5,909	6	2	0
Total - paid employees	413,479	3,305	2,934	263

Note: Figures may not add up to sums shown because of rounding.

Support activities, agriculture and forestry	Mining and oil and gas extraction	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
millions of dollars						
705	10,111	6,162	36,120	96,082	34,783	37,238
118	1,180	1,091	2,714	18,983	8,113	15,812
22	294	227	571	5,183	2,231	3,873
0	1	0	3	125	7	29
1	11	2	31	406	78	240
3	38	22	124	1,181	404	1,078
9	148	107	323	1,934	1,085	1,726
6	75	77	72	1,229	549	688
3	23	19	18	309	109	112
44	485	482	921	6,524	2,908	4,454
0	1	0	8	279	17	62
4	29	14	78	862	199	480
12	95	101	276	1,826	773	1,519
21	226	233	470	2,502	1,422	1,846
4	74	101	67	806	422	461
3	40	32	22	249	76	87
587	8,931	5,071	33,406	77,099	26,670	21,426
218	3,124	1,956	10,888	26,125	9,342	6,423
7	86	8	398	618	83	88
25	442	61	1,633	3,220	882	655
35	628	278	2,332	6,017	2,139	1,782
108	1,411	1,190	5,946	11,671	4,637	2,991
25	370	302	426	3,222	1,234	700
19	187	118	154	1,467	367	206
152	2,632	1,956	8,430	19,134	7,146	4,416
9	150	22	697	957	139	146
15	372	83	1,236	2,573	666	546
17	364	256	1,492	3,988	1,714	1,237
68	1,221	1,042	4,470	8,592	3,402	1,843
22	350	357	374	2,063	892	466
22	175	198	161	961	332	177
705	10,111	6,162	36,120	96,082	34,783	37,238

Table 19
Labour compensation in 2000 — Part 2

	Transportation and warehousing	Information and cultural industries	Professional, scientific and technical services	Administrative and support ¹	Finance ²	Educational services	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services ³	Government sector and NPISHs
millions of dollars											
Total	27,691	16,831	31,208	15,145	48,596	1,221	10,778	4,767	17,677	11,863	131,725
Female	4,870	6,728	10,083	5,991	24,166	749	8,549	2,031	9,031	4,914	...
Aged 25 to 34	1,245	1,971	3,398	1,820	5,977	150	2,182	572	2,168	1,274	...
0 to 8 school years	6	2	1	17	10	0	11	1	35	16	...
Some high school	54	25	223	80	83	1	47	24	228	69	...
High-school graduate	266	238	210	300	964	4	170	102	610	236	...
Postsecondary graduate	572	770	1,277	948	2,602	21	1,202	242	953	748	...
Bachelor's degree	278	689	1,191	368	1,896	90	545	152	296	151	...
Postgraduate degree	69	247	696	108	423	36	207	51	47	53	...
Aged 35 to 44	1,728	2,330	3,533	1,584	8,882	208	2,611	549	2,205	1,363	...
0 to 8 school years	15	7	1	46	19	0	24	7	97	31	...
Some high school	152	69	58	150	217	3	113	44	409	119	...
High-school graduate	517	567	498	358	2,515	14	316	134	688	324	...
Postsecondary graduate	786	1,010	1,641	769	4,131	43	1,507	235	815	686	...
Bachelor's degree	203	467	848	196	1,522	100	461	90	168	134	...
Postgraduate degree	54	210	487	65	478	48	189	38	27	70	...
Male	22,821	10,103	21,125	9,154	24,429	472	2,228	2,735	8,646	6,949	...
Aged 35 to 44	7,842	3,392	7,079	2,410	8,072	127	719	690	2,225	2,175	...
0 to 8 school years	197	8	4	86	24	0	13	11	76	56	...
Some high school	1,185	82	57	345	210	3	25	57	285	222	...
High-school graduate	2,241	513	346	544	803	7	62	140	558	371	...
Postsecondary graduate	3,401	1,672	2,366	1,082	3,043	29	296	338	980	1,327	...
Bachelor's degree	594	695	2,394	224	2,567	49	175	100	252	125	...
Postgraduate degree	224	421	1,912	129	1,424	38	147	44	73	75	...
Aged 45 to 54	6,929	2,620	4,900	1,769	6,739	197	645	529	1,229	1,575	...
0 to 8 school years	340	10	6	107	44	1	10	22	93	88	...
Some high school	1,062	88	56	237	182	3	21	43	178	166	...
High-school graduate	1,929	457	312	372	1,050	7	48	97	296	239	...
Postsecondary graduate	2,789	1,267	1,445	725	2,668	32	214	209	455	849	...
Bachelor's degree	549	466	1,496	199	1,702	75	171	103	159	116	...
Postgraduate degree	260	331	1,586	129	1,093	78	181	54	48	116	...
Total - paid employees	27,691	16,831	31,208	15,145	48,596	1,221	10,778	4,767	17,677	11,863	131,725

1. Administrative and support, waste management and remediation services.

2. Finance, insurance, real estate and rental and leasing.

3. Other services (except public administration).

Notes: NPISH: non-profit institution serving households. Figures may not add up to sums shown because of rounding.

Table 20
Compensation per hour in 2000 — Part 1

	All industries ¹	Crop and animal products	Forestry and logging	Fishing, hunting and trapping	Support activities, agriculture and forestry	Mining and oil and gas extraction	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
dollars											
Total	21.5	12.5	24.1	15.4	17.0	28.3	35.3	24.5	24.4	22.4	15.1
Female	17.6	11.7	19.9	12.5	13.7	24.4	30.5	19.1	18.9	19.0	13.1
Aged 25 to 34	18.5	13.0	19.9	14.0	13.4	23.7	28.9	18.5	19.4	19.9	14.5
0 to 8 school years	13.0	7.5	25.3	1.3	5.9	21.5	16.2	11.7	14.7	11.3	11.7
Some high school	12.7	11.4	17.1	12.0	9.3	15.7	20.3	17.1	14.7	14.2	11.5
High-school graduate	16.1	13.2	18.0	13.9	10.9	22.1	22.3	18.4	17.4	18.7	13.7
Postsecondary graduate	17.7	15.0	18.4	14.0	13.1	21.6	26.3	18.4	18.6	198.0	14.2
Bachelor's degree	23.2	12.9	29.6	23.4	16.3	30.6	35.6	19.5	25.5	22.3	18.2
Postgraduate degree	15.5	7.9	14.6	11.3	16.1	30.8	35.7	22.1	29.0	21.3	18.0
Aged 35 to 44	19.8	13.1	21.6	12.4	16.3	26.7	32.4	20.4	19.7	20.6	14.7
0 to 8 school years	12.4	10.1	20.1	11.3	7.0	14.5	10.9	14.1	14.1	12.6	11.5
Some high school	13.9	13.0	17.2	9.8	14.4	21.8	28.7	17.0	15.9	15.1	12.2
High-school graduate	18.1	12.3	20.0	13.6	13.9	22.9	28.0	20.3	18.6	19.0	14.0
Postsecondary graduate	20.1	14.2	22.3	13.6	17.5	24.8	30.2	10.5	20.6	21.2	15.1
Bachelor's degree	27.2	1.3	37.3	13.7	20.9	38.8	45.0	25.3	27.7	27.2	20.3
Postgraduate degree	28.7	13.3	11.9	6.9	20.6	48.0	40.5	24.3	30.1	19.8	18.4
Male	23.7	12.8	24.5	15.9	17.9	28.9	36.5	25.1	26.2	23.7	17.1
Aged 35 to 44	26.3	14.2	25.7	17.0	20.4	30.1	37.1	27.0	28.0	25.9	20.3
0 to 8 school years	18.8	14.9	21.5	15.8	16.4	24.4	20.8	23.7	19.6	17.5	15.0
Some high school	20.6	14.6	24.0	15.4	18.7	24.5	30.0	24.0	23.1	20.0	16.8
High-school graduate	23.8	13.3	27.9	16.7	18.9	27.3	32.5	25.7	26.6	24.3	19.9
Postsecondary graduate	2.8	14.9	26.3	19.4	20.9	30.2	36.8	28.7	28.4	27.6	20.9
Bachelor's degree	33.3	12.1	35.1	17.6	23.0	43.9	45.6	27.7	35.6	30.6	22.6
Postgraduate degree	35.8	8.9	10.0	13.9	22.8	47.1	41.5	30.5	37.0	24.4	23.5
Aged 45 to 54	28.1	12.7	26.3	18.0	19.5	34.6	39.3	28.7	30.2	27.7	20.6
0 to 8 school years	20.4	15.8	21.2	16.6	16.2	27.9	29.0	25.1	22.3	19.1	15.8
Some high school	22.3	13.8	24.9	15.5	16.3	28.1	31.5	15.7	25.9	20.8	18.1
High-school graduate	26.2	11.1	26.9	18.3	16.8	30.5	35.1	17.8	28.9	27.4	20.8
Postsecondary graduate	29.1	13.0	27.8	22.3	19.4	34.8	37.7	30.6	31.5	29.8	21.3
Bachelor's degree	33.8	10.2	44.8	17.1	24.1	51.1	48.4	29.7	36.8	30.0	22.0
Postgraduate degree	36.9	6.6	17.1	8.1	23.4	49.1	48.2	31.8	38.3	28.7	22.8

1. Excluding the government sector and non-profit institutions serving households.

Table 21
Compensation per hour in 2000 — Part 2

	Transportation and warehousing	Information and cultural industries	Professional, and scientific and technical services	Administrative and support ¹	Finance ²	Educational services	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)
	dollars									
Total	22.4	27.2	26.0	17.1	32.4	18.9	16.2	16.7	11.1	14.4
Female	20.3	23.8	21.5	16.1	28.3	18.1	15.9	15.5	10.3	12.7
Aged 25 to 34	20.1	23.7	21.8	17.7	27.7	16.3	16.1	16.7	11.5	12.8
0 to 8 school years	14.3	19.3	12.1	11.8	24.6	6.9	13.8	13.3	10.4	12.6
Some high school	14.8	15.6	13.8	13.5	18.1	8.7	11.1	12.2	9.7	10.8
High-school graduate	18.4	22.3	17.7	15.9	25.5	11.1	13.3	15.3	10.7	11.2
Postsecondary graduate	19.0	22.2	19.7	17.6	25.7	12.4	15.4	16.1	11.9	12.7
Bachelor's degree	25.6	24.9	22.9	20.1	32.6	17.0	18.8	18.8	13.7	16.3
Postgraduate degree	29.3	30.2	27.6	23.8	31.3	18.7	18.9	20.7	14.9	21.3
Aged 35 to 44	21.3	25.9	23.6	16.4	30.6	127.9	16.7	18.5	11.3	13.8
0 to 8 school years	13.7	24.2	10.1	12.4	21.4	6.9	11.3	14.9	9.9	9.5
Some high school	17.2	18.4	15.0	14.0	20.6	9.8	12.2	14.3	9.9	10.9
High-school graduate	19.8	24.0	19.3	15.3	27.9	12.2	13.9	17.3	10.9	12.2
Postsecondary graduate	21.6	25.3	22.4	16.5	29.9	13.8	16.6	18.8	12.1	14.1
Bachelor's degree	28.7	29.3	28.0	20.1	39.6	20.7	21.2	20.6	14.6	19.7
Postgraduate degree	30.3	33.1	30.0	25.1	42.0	21.7	19.8	26.2	14.5	25.0
Male	22.9	30.0	28.9	17.9	37.8	20.3	17.4	17.7	12.1	15.9
Aged 35 to 44	23.7	32.8	31.4	19.8	43.1	20.2	19.0	21.0	14.6	17.5
0 to 8 school years	18.6	37.1	15.6	16.0	19.0	10.9	13.6	15.1	11.6	14.0
Some high school	19.2	24.7	17.2	17.4	25.7	12.4	13.9	17.2	11.9	14.4
High-school graduate	22.8	29.7	24.5	19.6	33.4	14.2	16.2	19.3	14.0	16.4
Postsecondary graduate	25.4	32.1	29.1	20.3	40.3	17.8	18.4	22.3	15.6	17.9
Bachelor's degree	31.1	34.9	33.1	21.4	49.5	22.2	21.9	21.0	16.3	21.7
Postgraduate degree	34.5	39.6	35.4	26.0	54.3	23.5	20.5	26.9	19.2	30.4
Aged 45 to 54	25.8	35.3	33.3	19.8	44.4	23.0	19.8	22.1	13.7	18.2
0 to 8 school years	19.2	33.1	18.8	17.0	20.5	12.9	10.1	17.7	10.3	14.9
Some high school	21.0	26.5	20.8	17.7	23.1	13.2	13.9	16.3	11.4	15.7
High-school graduate	25.6	33.5	27.2	19.1	40.3	15.9	16.2	18.6	13.6	16.9
Postsecondary graduate	27.6	35.2	30.8	20.2	42.8	20.0	20.0	22.8	14.7	17.8
Bachelor's degree	31.3	37.3	33.4	22.0	50.8	24.3	23.3	27.2	16.7	23.1
Postgraduate degree	41.4	39.2	38.5	24.6	55.3	25.3	19.8	28.8	15.7	37.6

1. Administrative and support, waste management and remediation services.

2. Finance, insurance, real estate and rental and leasing.

10 Third application: Expanding the government account (taxes on products by type and by origin)

This section provides a breakdown of taxes on products. The goal of this study is to present an appropriate breakdown of tax types, along with the associated tax bases (types of products), showing the origin of government revenues from indirect taxes. These taxes do not include taxes levied on incomes of persons or on incomes of incorporated and unincorporated enterprises, or taxes on production, such as property taxes, school taxes, and capital taxes. The latter taxes could also be expanded through a study similar to what appears in this paper.

At the most disaggregate level, the CSNA compiles 14 types of product taxes in its national and provincial input-output tables.¹⁸ For the purposes of this exercise, these product taxes have been grouped into six broad tax groups.

Federal taxes: These consist of federal trading profits, the federal gasoline sales tax, the federal air (transportation) tax, the excise tax, and the excise duty.

Provincial taxes: These are taxes imposed by various provincial governments in Canada. They consist of the provincial gallon tax (on alcoholic beverages), the tax on trading profits, and the provincial gasoline sales tax.

Municipal sales taxes: these consist only of amusement taxes levied by certain municipalities.

Goods and Services Tax (GST): The GST, imposed nation-wide by the federal government, accounts for the largest proportion of indirect tax revenue. With relatively few exceptions, such as some types of store-purchased foods and financial services, all goods and services transacted in Canada are subject to the GST. Businesses receive refunds for GST paid on intermediate inputs. The Harmonized Sales Tax (HST) has recently replaced the GST in some provinces, where, subject to a federal-provincial tax accord on sales tax harmonization, the federal government collects the provincial sales tax and the GST in a single collection at the point of sale.

Provincial Sales Tax (PST): This is the provincial counterpart of the GST. It is imposed by most provinces on most types of transactions involving goods.

Custom Duties: These taxes are imposed by the federal government on imports of goods. Data on import duties were estimated from the input-output tables on the basis of the import-share assumption conventionally used for these calculations.

The disaggregate SAM presented in Table 22 shows the values of taxes collected for each of the above six types and lists the types of products affected. This is a disaggregation of the "Taxes less subsidies on products," which has a value of \$86.2 billion, as shown in the cell at the intersection of the "Allocation of primary income" row and the "Goods and services (products)" column of Table 1 or, alternatively, in Table 5 as the sum of (4c, 1a), (4c, 1b), and (4c, 1c). Table 23 expresses the effective tax rates that underlie Table 22, showing those taxes as a percentage of the value of goods and services associated with them.

Table 22 reveals the preponderance of product tax revenue in final expenditure, which accounts for about 80% of the total taxes on product; about 85% of this total comes from personal consumption expenditure. Slightly more than 12% of taxes on final expenditure were collected through levies on

18. Input-output tables compile these taxes with an extensive commodity detail for each paying industry and for each category of final demand.

capital formation (such as construction, and machinery and equipment). Exports accounted for a negligible share of taxes. Taxes on intermediate consumption of goods and services by domestic industry accounted for the remaining 20% of taxes collected, with some 87% of such taxes coming from industries other than construction. Table 22 also shows that provincial sales taxes account for more than 80% of the taxes imposed on the construction industry's intermediate expenses, with another 10% taking the form of other provincial taxes. Import duties and other federal taxes comprise less than 10% of the taxes paid by the construction industry.

Table 22
Taxes on products by type of tax and type of payer, Canada, 2000

Type of payer	Total,	Sales taxes		Federal	Provincial	Municipal	Custom
	all taxes	Federal (GST)	Provincial (PST)	taxes	taxes	taxes	import duties
billions of dollars							
Total, all payers	86.2	26.6	30.6	8.4	17.9	0.3	2.4
Intermediate consumption	17.3	2.5	7.4	2.1	4.5	0.0	0.7
Construction industry	2.1	0.0	1.7	0.1	0.2	0.0	0.1
Industries excluding construction	15.2	2.5	5.7	2.0	4.3	0.0	0.7
Final consumption	68.9	24.2	23.2	6.2	13.4	0.2	1.7
Personal sector expenditure	58.3	19.7	18.8	5.9	12.3	0.0	1.6
NPISH expenditure	0.3	0.2	0.1	0.0	0.0	0.0	0.0
Capital formation	8.5	3.8	3.5	0.1	0.9	0.2	0.1
Machinery and equipment	3.7	0.8	2.7	0.1	0.0	0.0	0.1
Construction	4.9	3.0	0.8	0.0	0.9	0.2	0.0
Government expenditures	1.7	0.5	0.8	0.2	0.2	0.0	0.0
Exports	0.1	...	...	0.1	...	...	...

Notes: GST: goods and services tax; NPISH: non-profit institution serving households; PST: provincial sales tax. Figures may not add up to sums shown because of rounding.

Table 23 contains effective tax rates that illustrate the relative incidence of taxes on products shown in Table 22.¹⁹ By far, the highest incidence occurs on personal consumption expenditure, whereby consumers pay about 11%. While the federal GST applies at the rate of 7% (in 2000), tax exemptions for consumer expenditures such as food and rent and for financial services, such as banking, reduce the effective rate to 3.7%. The effective tax rate on capital formation was 4.3% in 2000; this tax rate comes mostly through federal and provincial sales taxes paid on investment goods and services that are capitalized. Canadian industry paid about 2.0% on its intermediate expenses, about the same as governments paid on their expenditures (1.9%). However, the construction industry paid a substantially higher tax rate (3.4%) on the goods and services that it bought in order to produce its output. This industry is defined in the national accounts as including not only the builders of residential and non-residential structures, but also all other construction activities conducted on own-account elsewhere in the economy. The tax on exports was less than one-tenth of one percent, whereas imports were subject to an effective rate of 0.6% in custom

19. Import duties are included in the valuation of transactions in both valuation systems used in the CSNA: in modified basic prices, import duties are included in transaction values, whereas in purchaser prices, all taxes shown in Table 22 are included (as also are all margins). Sales taxes, both provincial and GST/HST, apply to the value of transactions including all other taxes, namely, import duties, federal, provincial and municipal taxes. This means that, in the calculation of tax rates in Table 23, the tax base used for the rate on import duties is producer prices less duties; that of federal, provincial and municipal taxes, the base is producer prices (including import duties); and that for PST and federal (goods and services) sales taxes include all previously mentioned taxes. While in Quebec the PST is applied to transaction prices including GST, this is not shown in the present table.

duties. The highest rate of import duties is found in goods that enter into personal consumption expenditure.

Table 23
Effective tax rates for taxes on products by type of tax and type of payer,
Canada, 2000

Canada, 2000

Type of payer	Total, all taxes	Sales taxes		Federal taxes	Provincial taxes	Municipal taxes	Custom import duties
		Federal (GST)	Provincial (PST)				
				percent			
Total, all payers	4.0	1.2	1.4	0.4	0.8	0.0	0.1
Intermediate consumption	2.0	0.3	0.9	0.2	0.5	0.0	0.1
Construction industry	3.4	0.0	2.8	0.2	0.3	0.0	0.1
Industries excluding construction	1.9	0.3	0.7	0.2	0.5	0.0	0.1
Final consumption	5.4	1.9	1.8	0.5	1.0	0.0	0.1
Personal sector expenditure	11.1	3.7	3.6	1.0	2.2	0.0	0.3
NPISH expenditure	5.5	2.5	2.2	0.3	0.4	0.0	0.0
Capital formation	4.3	1.9	1.8	0.0	0.4	0.1	0.1
Machinery and equipment	4.2	1.0	3.0	0.1	0.0	0.0	0.1
Construction	4.4	2.7	0.7	0.0	0.8	0.2	0.0
Government expenditures	1.9	0.5	0.9	0.2	0.2	0.0	0.0
Exports	0.0	...	...	0.0	...	...	...
Imports	0.6	...	...	...	...	...	0.6

Notes: GST: goods and services tax; NPISH: non-profit institution serving households; PST: provincial sales tax. Figures may not add up to sums shown because of rounding.

11 Conclusion

This study has demonstrated the feasibility of constructing a Social Accounting Matrix (SAM) for the Canadian economy with existing Statistics Canada economic and social statistics. At the macro level, the data sources are the income and outlay accounts and the national input-output tables. Micro variables are obtained from a household spending survey, payroll and labour force surveys, and income tax files. The study has shown that SAM is a useful construct in its own right as an integrated system of socioeconomic statistics.

This paper shows three applications of SAM integrating macro and micro concepts and data sources. The most interesting case is the socioeconomic disaggregation of the household sector (the first application), which is possible only in a SAM framework. The paper shows that a market transaction approach to measuring the household sector works well for integrating incomes, outlays, and savings of the sector with socioeconomic data on household attributes. The authors suggest that a supplementary income and outlay account for the household sector based on the transaction approach would be a useful addition to existing statistical measures. While the paper presents a complete integration of macro and micro concepts that employs the market transaction approach, statistical integration of household spending data, tax data, and national accounts aggregates is a broader project than the objective of this paper. Work is under way by the authors and others at Statistics Canada to enhance the statistical reconciliation of household income data through the integration of household surveys with income tax data and other sources.

12 Appendix

12.1 Results for households in the third income quintile

The third income quintile shows a net borrowing of \$2.3 billion, or \$995 per household, in 2000 (Table 15). By contrast, the second quintile has a positive saving of \$881 per household, and higher quintiles also show positive savings that rise with households' average income levels. This finding challenges the expectation that saving levels would monotonically rise with income levels for each quintile. The purpose of this subsection is to explore possible explanations for the saving pattern observed across quintiles, by means of the limited data available at the present time. A definitive explanation would require data on all elements of income and outlays over a period of several years. However, some tentative explanations can be gleaned from available data on household attributes.

Comparing the households in this quintile with others in the SHS suggests explanations in terms of the average age of household members and in terms of their employment status. Households in the third quintile have an average income of \$56,500, about 44% higher than the \$39,000 earned by those in the second quintile. However, it could be argued that these households expect a still higher long-term income, because 69% of them are holders of full-time jobs, whereas the rate is only 40% for the second quintile (the rate is 85% for the fourth quintile). Full-time employment brings with it not only a higher expected lifetime income to support consumption, but also the ability to finance consumptions in excess of current income on a temporary basis. This explanation is consistent with predictions of the permanent income hypothesis of consumption.

A second and complementary explanation relates to the average age of wage-earners who head households. A proxy for this available from the SHS is the average age of the reference person—the individual who is normally responsible for financial maintenance of the household, such as paying bills. The third quintile's reference person is on average 47 years old, and nearly a half (46%) of all reference persons are between 25 and 44 years of age. The reference person in the second quintile is considerably older, at 53 years of age. In the second quintile, reference persons are fairly evenly spread: about one-third are in the 25-to-44 age bracket; one-third are in the 45-to-64 age bracket; and about 31% are 65 years of age or over. In the fourth and fifth quintiles, the average age declines only slightly, to 45 years and 46 years, respectively. However, these households have substantially higher levels of income on both a per-adult basis and a per-person basis, compared with households in the third quintile. This explanation is consistent with the life-cycle theory of consumption.

In sum, the likely explanation of the observed saving pattern is that households in the third income quintile have a disproportionate number of people who are economically secure since they hold full-time jobs, yet are within an age bracket when major expenditures are undertaken that are associated with early stages of life in anticipation of higher incomes in the future.

12.2 Labour compensation in 2000 — Tables

Table 24

Labour compensation in 2000 — Part 1

	All industries	Crop and animal product	Forestry and logging	Fishing, hunting and trapping	Support activities, agriculture and forestry	Mining and oil and gas extraction
millions of dollars						
Total	545,204	3,305	2,934	263	705	10,111
Female	126,172	822	196	31	118	1,180
Aged 16 to 17	1,192	32	0	0	1	0
0 to 8 school years	41	6	0	0	0	0
Some high school	988	24	0	0	1	0
High-school graduate	96	1	0	0	0	0
Postsecondary graduate	66	1	0	0	0	0
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	13,024	109	18	2	16	75
0 to 8 school years	56	4	0	0	0	0
Some high school	1,216	20	1	0	1	5
High-school graduate	3,440	25	5	0	3	13
Postsecondary graduate	6,981	56	10	1	10	47
Bachelor's degree	1,190	3	2	0	2	10
Postgraduate degree	142	0	0	...	0	0
Aged 25 to 34	33,356	143	44	8	22	294
0 to 8 school years	275	8	1	1	0	1
Some high school	1,422	17	2	1	1	11
High-school graduate	5,996	35	10	2	3	38
Postsecondary graduate	14,757	69	21	4	9	146
Bachelor's degree	8,374	12	9	0	6	75
Postgraduate degree	2,531	2	0	0	3	23
Aged 35 to 44	41,129	261	70	7	44	465
0 to 8 school years	636	20	1	1	0	1
Some high school	3,052	41	9	1	4	29
High-school graduate	10,624	72	17	2	12	95
Postsecondary graduate	18,490	109	35	3	21	226
Bachelor's degree	6,148	17	7	0	4	74
Postgraduate degree	2,178	3	1	0	3	40
Aged 45 to 54	28,511	186	48	11	26	290
0 to 8 school years	1,009	23	1	1	1	1
Some high school	2,836	36	9	4	3	26
High-school graduate	8,546	48	14	2	7	79
Postsecondary graduate	11,294	68	21	3	11	133
Bachelor's degree	3,303	9	3	0	1	38
Postgraduate degree	1,524	2	0	0	3	13
Aged 55 to 64	8,452	80	14	3	8	56
0 to 8 school years	689	20	2	0	1	3
Some high school	1,262	17	4	2	2	7
High-school graduate	2,337	13	2	1	2	19
Postsecondary graduate	3,243	27	4	1	2	23
Bachelor's degree	629	3	1	0	0	2
Postgraduate degree	293	0	0	...	0	1
Aged 65 plus	508	10	1	0	0	0
0 to 8 school years	55	3	0	0	0	0
Some high school	88	2	0	0	0	0
High-school graduate	156	2	1	0	...	0
Postsecondary graduate	157	3	0	0	0	0
Bachelor's degree	31	0	...	...	0	...
Postgraduate degree	20	0	...	...	...	...

Table 24

Labour compensation in 2000 — Part 1 (concluded)

	All industries	Crop and animal product	Forestry and logging	Fishing, hunting and trapping	Support activities, agriculture and forestry	Mining and oil and gas extraction
	millions of dollars					
Male	287,307	2,483	2,739	232	587	8,931
Aged 16 to 17	1,587	93	5	2	4	5
0 to 8 school years	116	16	1	0	1	0
Some high school	1,233	72	3	1	3	5
High-school graduate	104	3	0	0	0	0
Postsecondary graduate	134	3	0	0	1	0
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	22,027	392	229	21	56	611
0 to 8 school years	304	23	10	1	1	8
Some high school	3,390	102	60	7	9	139
High-school graduate	7,074	120	69	6	13	234
Postsecondary graduate	9,891	140	83	7	29	215
Bachelor's degree	1,215	7	6	0	4	14
Postgraduate degree	152	0	0	0	0	1
Aged 25 to 34	69,497	520	579	76	113	1,968
0 to 8 school years	942	45	27	9	3	36
Some high school	5,417	88	113	21	10	258
High-school graduate	13,675	131	157	12	18	500
Postsecondary graduate	31,892	225	232	33	59	904
Bachelor's degree	13,167	28	50	1	15	217
Postgraduate degree	4,405	3	1	0	8	54
Aged 35 to 44	94,599	726	926	51	218	3,124
0 to 8 school years	1,915	66	75	9	7	86
Some high school	9,823	165	253	15	25	442
High-school graduate	19,210	193	213	9	35	628
Postsecondary graduate	43,107	265	336	19	108	1,411
Bachelor's degree	13,532	29	47	0	25	370
Postgraduate degree	7,012	6	2	0	19	187
Aged 45 to 54	72,253	488	708	61	152	2,632
0 to 8 school years	3,041	76	106	17	9	150
Some high school	7,828	111	174	16	15	372
High-school graduate	14,111	98	132	5	17	364
Postsecondary graduate	31,732	169	249	21	68	1,221
Bachelor's degree	9,633	27	44	1	22	350
Postgraduate degree	5,909	6	2	0	22	175
Aged 55 to 64	25,843	230	282	21	43	589
0 to 8 school years	2,901	85	102	8	7	88
Some high school	3,685	53	70	5	7	99
High-school graduate	4,977	30	26	2	4	93
Postsecondary graduate	9,991	54	73	6	13	213
Bachelor's degree	2,407	5	10	0	5	57
Postgraduate degree	1,883	2	0	0	7	39
Aged 65 plus	1,501	34	9	0	1	2
0 to 8 school years	181	12	4	0	0	0
Some high school	271	11	2	0	0	0
High-school graduate	277	5	1	0	0	0
Postsecondary graduate	517	5	2	0	0	1
Bachelor's degree	135	0	0	0	0	0
Postgraduate degree	121	0	0	...	0	0

Table 25
Labour compensation in 2000 — Part 2

	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
millions of dollars					
Total	6,162	36,120	96,082	34,783	37,238
Female	1,091	2,714	18,983	8,113	15,812
Aged 16 to 17	0	8	49	18	384
0 to 8 school years	...	0	6	0	7
Some high school	0	7	35	15	315
High-school graduate	0	1	4	2	36
Postsecondary graduate	0	1	3	1	25
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	28	180	1,568	537	2,709
0 to 8 school years	0	1	19	1	9
Some high school	1	20	199	41	260
High-school graduate	4	44	446	141	857
Postsecondary graduate	17	105	730	295	1,423
Bachelor's degree	5	9	158	54	147
Postgraduate degree	1	1	16	4	13
Aged 25 to 34	227	571	5,183	2,231	3,873
0 to 8 school years	0	3	125	7	29
Some high school	2	31	406	78	240
High-school graduate	22	124	1,181	404	1,078
Postsecondary graduate	107	323	1,934	1,085	1,726
Bachelor's degree	77	72	1,229	549	688
Postgraduate degree	19	18	309	109	112
Aged 35 to 44	482	921	6,524	2,908	4,454
0 to 8 school years	0	8	279	17	62
Some high school	14	78	862	199	480
High-school graduate	101	276	1,826	773	1,519
Postsecondary graduate	223	470	2,502	1,422	1,846
Bachelor's degree	101	67	806	422	461
Postgraduate degree	32	22	249	76	87
Aged 45 to 54	304	740	4,285	1,866	3,232
0 to 8 school years	1	23	420	22	114
Some high school	14	90	751	176	478
High-school graduate	89	241	1,304	609	1,189
Postsecondary graduate	136	322	1,361	841	1,121
Bachelor's degree	37	52	343	175	268
Postgraduate degree	26	12	105	43	61
Aged 55 to 64	49	277	1,335	530	1,086
0 to 8 school years	0	21	249	15	77
Some high school	3	54	268	82	214
High-school graduate	18	82	342	165	355
Postsecondary graduate	24	108	400	235	371
Bachelor's degree	3	10	57	22	55
Postgraduate degree	1	2	19	11	14
Aged 65 plus	0	18	39	22	73
0 to 8 school years	0	2	7	1	7
Some high school	0	5	10	4	14
High-school graduate	...	6	9	9	27
Postsecondary graduate	...	4	11	7	19
Bachelor's degree	...	1	0	1	5
Postgraduate degree	...	0	2	0	2

Table 25
Labour compensation in 2000 — Part 2 (concluded)

	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
millions of dollars					
Male	5,071	33,406	77,099	26,670	21,426
Aged 16 to 17	0	118	180	68	387
0 to 8 school years	0	13	35	5	13
Some high school	0	86	118	51	307
High-school graduate	0	9	13	5	30
Postsecondary graduate	0	10	14	7	37
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	57	2,783	5,505	1,508	2,702
0 to 8 school years	0	41	99	15	25
Some high school	3	576	923	237	348
High-school graduate	10	929	1,908	496	974
Postsecondary graduate	35	1,196	2,273	687	1,256
Bachelor's degree	8	37	273	65	90
Postgraduate degree	0	3	29	7	9
Aged 25 to 34	652	7,800	18,531	5,962	5,600
0 to 8 school years	2	182	309	39	65
Some high school	14	993	1,706	415	418
High-school graduate	57	1,768	4,214	1,340	1,493
Postsecondary graduate	391	4,397	8,429	2,913	2,752
Bachelor's degree	150	377	3,020	1,051	727
Postgraduate degree	38	83	852	204	146
Aged 35 to 44	1,956	10,888	26,215	9,342	6,423
0 to 8 school years	8	398	618	83	88
Some high school	61	1,633	3,220	882	655
High-school graduate	278	2,332	6,017	2,139	1,782
Postsecondary graduate	1,190	5,946	11,671	4,637	2,991
Bachelor's degree	302	426	3,222	1,234	700
Postgraduate degree	118	154	1,467	367	206
Aged 45 to 54	1,956	8,430	19,134	7,146	4,416
0 to 8 school years	22	697	957	139	146
Some high school	83	1,236	2,573	666	546
High-school graduate	256	1,492	3,988	1,714	1,237
Postsecondary graduate	1,042	4,470	8,592	3,402	1,843
Bachelor's degree	357	374	2,063	892	466
Postgraduate degree	196	161	961	332	177
Aged 55 to 64	450	3,213	7,303	2,520	1,768
0 to 8 school years	20	659	895	138	157
Some high school	24	496	1,158	383	289
High-school graduate	48	463	1,340	608	483
Postsecondary graduate	215	429	2,959	1,048	617
Bachelor's degree	76	101	619	214	151
Postgraduate degree	67	65	331	129	72
Aged 65 plus	0	175	232	125	130
0 to 8 school years	0	35	30	7	13
Some high school	0	36	39	19	31
High-school graduate	0	19	27	53	34
Postsecondary graduate	0	77	111	34	40
Bachelor's degree	...	6	18	9	8
Postgraduate degree	...	2	7	4	4

Table 26

Labour compensation in 2000 — Part 3

	Transportation and warehousing	Information and cultural industries	Professional, scientific and technical services	Administrative and support ¹	Finance ²	Educational services
millions of dollars						
Total	27,691	16,831	31,208	15,145	48,596	1,221
Female	4,870	6,728	10,083	5,991	24,166	749
Aged 16 to 17	6	27	9	40	44	0
0 to 8 school years	0	0	0	1	1	0
Some high school	4	22	8	34	30	0
High-school graduate	1	3	1	3	8	0
Postsecondary graduate	0	2	1	2	6	0
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	334	534	706	863	1,482	22
0 to 8 school years	1	0	0	2	1	0
Some high school	28	18	15	88	58	0
High-school graduate	87	99	80	227	354	1
Postsecondary graduate	184	317	425	465	834	8
Bachelor's degree	31	86	153	73	212	10
Postgraduate degree	3	14	33	8	23	2
Aged 25 to 34	1,245	1,971	3,398	1,820	5,977	150
0 to 8 school years	6	2	1	17	10	0
Some high school	54	25	23	80	83	1
High-school graduate	266	238	210	300	964	4
Postsecondary graduate	572	770	1,277	948	2,602	21
Bachelor's degree	278	689	1,191	368	1,896	90
Postgraduate degree	69	247	696	108	423	36
Aged 35 to 44	1,728	2,330	3,533	1,584	8,882	208
0 to 8 school years	15	7	1	46	19	0
Some high school	152	69	58	150	217	3
High-school graduate	517	567	498	358	2,515	14
Postsecondary graduate	786	1,010	1,641	769	4,131	43
Bachelor's degree	203	467	848	196	1,522	100
Postgraduate degree	54	210	487	65	478	48
Aged 45 to 54	1,175	1,541	1,930	1,262	6,168	296
0 to 8 school years	24	5	5	63	32	1
Some high school	141	61	54	129	236	4
High-school graduate	390	468	422	323	2,257	20
Postsecondary graduate	463	582	794	553	2,612	57
Bachelor's degree	111	262	359	145	730	137
Postgraduate degree	47	164	296	50	303	76
Aged 55 to 64	369	311	473	398	1,498	71
0 to 8 school years	20	6	4	42	29	1
Some high school	72	23	26	54	119	3
High-school graduate	119	84	128	105	538	6
Postsecondary graduate	130	107	224	153	636	19
Bachelor's degree	23	55	51	32	135	26
Postgraduate degree	5	36	41	12	41	17
Aged 65 plus	14	14	34	23	115	2
0 to 8 school years	2	1	0	2	7	0
Some high school	3	2	3	6	17	0
High-school graduate	5	4	10	7	43	0
Postsecondary graduate	2	3	14	6	40	1
Bachelor's degree	1	3	4	2	6	0
Postgraduate degree	0	2	3	0	2	0

See notes at end of table.

Table 26
Labour compensation in 2000 — Part 3 (concluded)

	Transportation and warehousing	Information and cultural industries	Professional, scientific and technical services	Administrative and support ¹	Finance ²	Educational services
	millions of dollars					
Male	22,821	10,103	21,125	9,154	24,429	472
Aged 16 to 17	25	35	9	86	46	0
0 to 8 school years	2	2	0	5	2	0
Some high school	19	26	6	70	27	0
High-school graduate	2	3	1	4	5	0
Postsecondary graduate	3	5	2	6	11	0
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	1,086	675	1,002	1,368	1,019	9
0 to 8 school years	18	1	2	20	4	0
Some high school	186	23	26	245	60	0
High-school graduate	409	131	117	472	229	1
Postsecondary graduate	441	415	566	582	518	5
Bachelor's degree	28	88	246	44	189	3
Postgraduate degree	3	16	46	5	19	1
Aged 25 to 34	4,597	2,822	6,380	2,503	5,887	77
0 to 8 school years	80	2	4	47	7	0
Some high school	522	41	34	258	102	1
High-school graduate	1,195	292	235	591	569	3
Postsecondary graduate	2,166	1,244	2,076	1,168	1,989	14
Bachelor's degree	527	870	2,664	331	2,376	41
Postgraduate degree	107	373	1,368	106	844	18
Aged 35 to 44	7,842	3,392	7,079	2,410	8,072	127
0 to 8 school years	197	8	4	86	24	0
Some high school	1,185	82	57	345	210	3
High-school graduate	2,241	513	346	544	803	7
Postsecondary graduate	3,401	1,672	2,366	1,082	3,043	29
Bachelor's degree	594	695	2,394	224	2,567	49
Postgraduate degree	224	421	1,912	129	1,424	38
Aged 45 to 54	6,929	2,620	4,900	1,769	8,739	197
0 to 8 school years	340	10	6	107	44	1
Some high school	1,062	88	56	237	182	3
High-school graduate	1,929	457	312	372	1,050	7
Postsecondary graduate	2,789	1,267	1,445	725	2,668	32
Bachelor's degree	549	466	1,496	199	1,702	75
Postgraduate degree	260	331	1,586	129	1,093	78
Aged 55 to 64	2,265	518	1,628	876	2,394	60
0 to 8 school years	325	12	10	116	67	2
Some high school	436	42	27	160	185	2
High-school graduate	551	94	128	210	579	3
Postsecondary graduate	780	183	515	293	954	11
Bachelor's degree	106	113	385	48	358	16
Postgraduate degree	68	75	564	49	252	25
Aged 65 plus	77	42	126	142	273	2
0 to 8 school years	18	1	1	21	18	0
Some high school	23	2	4	37	36	0
High-school graduate	10	2	6	30	67	0
Postsecondary graduate	22	8	32	48	95	0
Bachelor's degree	3	15	27	4	36	0
Postgraduate degree	1	14	55	4	22	1

1. Administrative and support, waste management and remediation services.

2. Finance, insurance, real estate and rental and leasing.

Table 27
Labour compensation in 2000 — Part 4

	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)	Government sector and NPISHs
millions of dollars					
Total	10,778	4,767	17,677	11,863	131,725
Female	8,549	2,031	9,031	4,914	...
Aged 16 to 17	15	66	454	37	...
0 to 8 school years	1	1	15	2	...
Some high school	12	55	394	31	...
High-school graduate	1	6	29	2	...
Postsecondary graduate	1	4	17	2	...
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	580	390	2,314	559	...
0 to 8 school years	2	11	11	3	...
Some high school	30	28	354	49	...
High-school graduate	70	95	750	139	...
Postsecondary graduate	405	215	1,088	345	...
Bachelor's degree	67	45	102	21	...
Postgraduate degree	7	6	9	2	...
Aged 25 to 34	2,182	572	2,168	1,274	...
0 to 8 school years	11	1	35	16	...
Some high school	47	24	228	69	...
High-school graduate	170	102	610	236	...
Postsecondary graduate	1,202	242	953	748	...
Bachelor's degree	545	152	296	151	...
Postgraduate degree	207	51	47	53	...
Aged 35 to 44	2,611	549	2,205	1,363	...
0 to 8 school years	24	7	97	31	...
Some high school	113	44	409	119	...
High-school graduate	316	134	688	324	...
Postsecondary graduate	1,507	235	815	686	...
Bachelor's degree	461	90	168	134	...
Postgraduate degree	189	38	27	70	...
Aged 45 to 54	2,270	338	1,319	1,225	...
0 to 8 school years	51	8	143	69	...
Some high school	142	31	309	143	...
High-school graduate	306	92	385	300	...
Postsecondary graduate	1,194	118	386	519	...
Bachelor's degree	384	52	79	118	...
Postgraduate degree	194	36	17	76	...
Aged 55 to 64	841	105	549	397	...
0 to 8 school years	43	9	108	41	...
Some high school	87	17	142	66	...
High-school graduate	109	29	128	93	...
Postsecondary graduate	445	36	143	153	...
Bachelor's degree	98	8	23	24	...
Postgraduate degree	60	6	5	20	...
Aged 65 plus	51	11	22	59	...
0 to 8 school years	4	1	5	13	...
Some high school	5	3	5	9	...
High-school graduate	11	2	7	16	...
Postsecondary graduate	23	5	4	17	...
Bachelor's degree	4	1	1	2	...
Postgraduate degree	5	0	0	3	...

See note at bottom of table.

Table 27
Labour compensation in 2000 — Part 4 (concluded)

	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)	Government sector and NPISHs
millions of dollars					
Male	2,228	2,735	8,646	6,949	...
Aged 16 to 17	6	84	397	36	...
0 to 8 school years	0	3	12	6	...
Some high school	5	68	341	25	...
High-school graduate	0	5	20	2	...
Postsecondary graduate	1	9	23	2	...
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	98	411	1,821	675	...
0 to 8 school years	2	3	20	12	...
Some high school	8	39	298	101	...
High-school graduate	15	130	627	181	...
Postsecondary graduate	61	207	805	371	...
Bachelor's degree	12	27	65	9	...
Postgraduate degree	1	4	6	1	...
Aged 25 to 34	529	784	2,344	1,772	...
0 to 8 school years	8	6	35	35	...
Some high school	14	36	224	149	...
High-school graduate	37	167	583	313	...
Postsecondary graduate	241	385	1,162	1,115	...
Bachelor's degree	158	150	290	121	...
Postgraduate degree	70	41	51	39	...
Aged 35 to 44	719	690	2,225	2,175	...
0 to 8 school years	13	11	76	56	...
Some high school	25	57	285	222	...
High-school graduate	62	140	558	371	...
Postsecondary graduate	296	338	980	1,327	...
Bachelor's degree	175	100	252	125	...
Postgraduate degree	147	44	73	75	...
Aged 45 to 54	645	529	1,229	1,575	...
0 to 8 school years	10	22	93	88	...
Some high school	21	43	178	166	...
High-school graduate	48	97	296	239	...
Postsecondary graduate	214	209	455	849	...
Bachelor's degree	171	103	159	116	...
Postgraduate degree	181	54	48	116	...
Aged 55 to 64	212	210	595	665	...
0 to 8 school years	12	25	95	77	...
Some high school	13	33	117	84	...
High-school graduate	21	44	142	108	...
Postsecondary graduate	67	75	169	318	...
Bachelor's degree	42	18	46	37	...
Postgraduate degree	57	15	25	42	...
Aged 65 plus	19	27	35	51	...
0 to 8 school years	2	4	6	9	...
Some high school	3	6	11	11	...
High-school graduate	2	7	7	8	...
Postsecondary graduate	5	8	9	19	...
Bachelor's degree	4	1	2	1	...
Postgraduate degree	4	1	0	3	...

Note: NPISH: non-profit organization serving households.

12.3 Compensation per hour in 2000 — Tables

Table 28

Compensation per hour in 2000 — Part 1

	All industries ¹	Crop and animal products	Forestry and logging	Fishing, hunting and trapping	Support activities, agriculture and forestry	Mining and oil and gas extraction
	dollars					
Total	21.5	12.5	24.1	15.4	17.0	28.3
Female	17.6	11.7	19.9	12.5	13.7	24.4
Aged 16 to 17	8.3	8.9	6.7	8.9	6.9	8.9
0 to 8 school years	8.8	5.4	...	1.4	5.2	7.3
Some high school	8.3	10.8	6.2	8.7	7.1	9.5
High-school graduate	8.7	7.1	9.4	14.3	5.7	7.1
Postsecondary graduate	8.7	10.1	12.1	6.6	6.4	9.5
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	11.8	11.3	16.0	9.4	10.4	16.8
0 to 8 school years	11.0	5.6	20.4	14.1	8.3	9.5
Some high school	9.6	10.2	14.1	7.3	11.0	11.8
High-school graduate	11.2	11.3	14.6	7.6	10.0	15.7
Postsecondary graduate	12.1	12.7	15.4	12.2	10.3	17.0
Bachelor's degree	15.9	11.0	26.3	7.4	12.1	22.4
Postgraduate degree	17.6	6.8	7.2	...	6.4	17.5
Aged 25 to 34	18.5	13.0	19.9	14.0	13.4	23.7
0 to 8 school years	13.0	7.5	25.3	16.3	5.9	21.5
Some high school	12.7	11.4	17.1	12.0	9.3	15.7
High-school graduate	16.1	13.2	18.0	13.9	10.9	22.1
Postsecondary graduate	17.7	15.0	18.4	14.0	13.1	21.6
Bachelor's degree	23.2	12.9	29.6	23.4	16.3	30.6
Postgraduate degree	25.5	7.9	14.6	11.3	16.1	30.8
Aged 35 to 44	19.8	13.1	21.6	12.4	16.3	26.7
0 to 8 school years	12.4	10.1	20.1	11.3	7.0	14.5
Some high school	13.9	13.0	17.2	9.8	14.4	21.8
High-school graduate	18.1	12.3	20.0	13.6	13.9	22.9
Postsecondary graduate	20.1	14.2	22.3	13.6	17.5	24.8
Bachelor's degree	27.2	14.3	37.3	13.7	20.9	38.8
Postgraduate degree	28.7	13.3	11.9	6.9	20.6	48.0
Aged 45 to 54	19.2	11.6	20.0	12.5	13.6	25.5
0 to 8 school years	12.9	12.5	14.0	10.6	10.8	10.5
Some high school	14.5	11.7	18.8	11.0	13.0	20.0
High-school graduate	19.2	10.8	21.8	13.4	14.2	25.0
Postsecondary graduate	19.7	12.5	20.1	17.2	12.1	25.2
Bachelor's degree	23.7	9.2	21.3	9.3	18.1	33.5
Postgraduate degree	28.3	6.0	11.1	4.1	26.4	33.4
Aged 55 to 64	16.9	9.9	20.7	12.1	14.6	22.1
0 to 8 school years	12.2	11.3	14.0	5.6	14.4	26.4
Some high school	14.2	9.4	25.9	18.4	12.8	19.7
High-school graduate	17.5	8.6	16.5	12.6	16.5	20.9
Postsecondary graduate	18.2	10.4	23.2	8.7	15.5	22.4
Bachelor's degree	20.8	7.7	24.4	15.9	4.4	40.3
Postgraduate degree	22.5	4.5	13.8	...	11.9	20.5
Aged 65 plus	12.0	5.8	9.4	17.8	5.6	3.6
0 to 8 school years	10.5	6.6	12.5	31.5	11.7	1.4
Some high school	10.9	5.0	8.2	13.5	2.4	4.7
High-school graduate	14.7	7.7	10.5	32.9	...	1.9
Postsecondary graduate	11.4	5.6	6.5	7.7	1.5	5.7
Bachelor's degree	10.4	2.2	...	...	5.6	...
Postgraduate degree	13.0	0.2	...	...	...	...

See note at bottom of table.

Table 28
Compensation per hour in 2000 — Part 1 (concluded)

	All industries ¹	Crop and animal products	Forestry and logging	Fishing, hunting and trapping	Support activities, agriculture and forestry	Mining and oil and gas extraction
	dollars					
Male	23.7	12.8	24.5	15.9	17.9	28.9
Aged 16 to 17	9.2	9.8	11.1	7.9	7.5	9.9
0 to 8 school years	9.6	6.8	11.2	11.1	14.8	11.2
Some high school	9.0	11.0	11.2	7.6	7.0	10.0
High-school graduate	10.1	9.5	10.8	9.6	7.4	9.4
Postsecondary graduate	10.2	8.2	10.2	7.3	5.8	7.3
Bachelor's degree	...	...	...	...	...	...
Postgraduate degree	...	...	...	...	...	...
Aged 18 to 24	14.3	12.3	17.6	11.0	12.0	18.6
0 to 8 school years	13.2	12.2	15.7	9.2	13.8	18.6
Some high school	12.6	13.0	15.6	9.1	11.7	16.6
High-school graduate	13.9	11.6	18.8	11.4	11.0	18.5
Postsecondary graduate	14.8	12.5	18.1	13.8	12.2	19.9
Bachelor's degree	19.5	12.5	24.7	19.2	14.0	24.3
Postgraduate degree	18.2	11.1	5.9	8.0	16.0	13.8
Aged 25 to 34	22.6	14.3	24.0	17.1	16.6	26.0
0 to 8 school years	17.4	14.5	20.0	16.7	14.5	23.7
Some high school	18.0	14.6	22.3	14.2	14.4	21.8
High-school graduate	20.3	13.3	24.9	17.0	16.6	24.9
Postsecondary graduate	22.1	15.2	23.3	20.0	16.3	26.0
Bachelor's degree	28.2	12.2	35.1	19.6	18.5	35.5
Postgraduate degree	30.7	8.6	10.3	7.2	20.1	34.6
Aged 35 to 44	26.3	14.2	25.7	17.0	20.4	30.1
0 to 8 school years	18.8	14.9	21.5	15.8	16.4	24.4
Some high school	20.6	14.6	24.0	15.4	18.7	24.5
High-school graduate	23.8	13.3	27.9	16.7	18.9	27.3
Postsecondary graduate	26.8	14.9	26.3	19.4	20.9	30.2
Bachelor's degree	33.3	12.1	35.1	17.6	23.0	43.9
Postgraduate degree	35.8	8.9	10.0	13.9	22.8	47.1
Aged 45 to 54	28.1	12.7	26.3	18.0	19.5	34.6
0 to 8 school years	20.4	15.8	21.2	16.6	16.2	27.9
Some high school	22.3	13.8	24.9	15.5	16.3	28.1
High-school graduate	26.2	11.1	26.9	18.3	16.8	30.5
Postsecondary graduate	29.1	13.0	27.8	22.3	19.4	34.8
Bachelor's degree	33.8	10.2	44.8	17.1	24.1	51.1
Postgraduate degree	36.9	6.6	17.1	8.1	23.4	49.1
Aged 55 to 64	24.7	10.8	26.9	13.3	19.1	30.2
0 to 8 school years	19.1	13.9	23.8	12.2	15.5	22.7
Some high school	21.6	10.2	26.8	12.7	18.8	26.7
High-school graduate	24.8	9.4	28.6	12.1	16.7	30.3
Postsecondary graduate	26.7	10.2	30.2	18.1	18.8	31.0
Bachelor's degree	26.8	5.0	46.4	13.8	19.5	47.2
Postgraduate degree	31.8	4.8	9.3	2.0	29.0	48.3
Aged 65 plus	13.9	5.9	12.7	11.9	7.8	6.1
0 to 8 school years	10.5	6.1	14.5	14.2	7.6	8.8
Some high school	13.5	7.3	14.0	10.5	11.5	4.2
High-school graduate	16.1	7.3	15.3	7.7	6.1	8.0
Postsecondary graduate	15.5	4.2	8.7	13.4	7.8	8.4
Bachelor's degree	12.2	2.4	14.8	14.0	1.9	1.9
Postgraduate degree	13.4	1.2	3.0	...	3.7	4.1

1. Excluding the government sector and non-profit institutions serving households.

Table 29
Compensation per hour in 2000 — Part 2

	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
	dollars				
Total	35.3	24.5	24.4	22.4	15.1
Female	30.5	19.1	18.9	19.0	13.1
Aged 16 to 17	7.0	9.5	10.9	11.1	8.4
0 to 8 school years	...	5.9	10.6	2.9	10.1
Some high school	5.7	9.6	11.0	11.6	8.4
High-school graduate	9.4	9.4	10.5	9.8	8.6
Postsecondary graduate	7.3	11.1	10.5	8.0	8.6
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	17.3	13.4	15.1	13.3	9.8
0 to 8 school years	11.4	26.4	14.5	10.6	11.3
Some high school	14.1	11.9	12.3	10.7	8.5
High-school graduate	116.0	13.2	14.6	13.0	9.8
Postsecondary graduate	16.6	13.7	15.3	13.4	10.0
Bachelor's degree	22.9	13.7	21.2	16.2	11.6
Postgraduate degree	21.0	20.5	23.4	15.7	10.6
Aged 25 to 34	28.9	18.5	19.4	19.9	14.5
0 to 8 school years	16.2	11.7	14.7	11.3	11.7
Some high school	20.3	17.1	14.7	14.2	11.5
High-school graduate	22.3	18.4	17.4	18.7	13.7
Postsecondary graduate	26.3	18.4	18.6	19.8	14.2
Bachelor's degree	35.6	19.5	25.5	22.3	18.2
Postgraduate degree	35.7	22.1	29.0	21.3	19.0
Aged 35 to 44	32.4	20.4	19.7	20.6	14.7
0 to 8 school years	10.9	14.1	14.1	12.6	11.5
Some high school	28.7	17.0	15.9	15.1	12.2
High-school graduate	28.0	20.3	18.6	19.0	14.0
Postsecondary graduate	30.2	20.5	20.6	21.2	15.1
Bachelor's degree	45.0	25.3	27.7	27.2	20.3
Postgraduate degree	40.5	24.3	30.1	19.8	18.4
Aged 45 to 54	32.0	20.5	19.3	19.7	14.3
0 to 8 school years	24.5	16.6	14.7	13.0	11.8
Some high school	30.4	19.5	16.8	16.3	12.7
High-school graduate	29.0	20.1	19.8	19.4	14.3
Postsecondary graduate	29.8	20.7	20.7	20.4	14.7
Bachelor's degree	43.6	24.2	25.2	22.9	16.5
Postgraduate degree	52.1	23.3	28.8	20.0	17.1
Aged 55 to 64	27.2	19.5	19.0	16.0	12.9
0 to 8 school years	14.5	16.0	15.1	10.8	10.2
Some high school	26.0	19.3	18.2	13.8	12.1
High-school graduate	26.7	19.4	19.7	16.7	13.0
Postsecondary graduate	26.8	20.5	21.7	17.0	14.0
Bachelor's degree	45.7	18.4	21.2	14.6	13.3
Postgraduate degree	32.3	22.4	26.0	18.0	15.9
Aged 65 plus	...	10.6	10.8	6.9	9.4
0 to 8 school years	...	14.7	9.0	8.0	7.9
Some high school	...	11.0	12.5	7.4	9.0
High-school graduate	...	11.4	11.5	7.7	11.5
Postsecondary graduate	...	7.5	11.3	6.6	8.0
Bachelor's degree	...	15.9	2.1	4.7	9.8
Postgraduate degree	...	8.6	12.9	1.5	12.3

Table 29
Compensation per hour in 2000 — Part 2 (concluded)

	Utilities	Construction	Manufacturing	Wholesale trade	Retail trade
	dollars				
Male	36.5	25.1	26.2	23.7	17.1
Aged 16 to 17	9.3	12.0	11.1	9.9	8.5
0 to 8 school years	11.1	9.3	11.5	9.2	9.3
Some high school	7.2	12.1	11.0	9.9	8.4
High-school graduate	7.1	14.2	11.7	10.4	9.4
Postsecondary graduate	13.5	14.4	10.8	10.6	9.0
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	18.1	16.9	17.2	14.0	10.9
0 to 8 school years	11.8	16.8	14.1	12.6	9.6
Some high school	16.9	15.5	14.9	12.0	9.6
High-school graduate	16.1	16.3	17.1	13.5	10.7
Postsecondary graduate	17.9	18.1	17.8	15.1	11.2
Bachelor's degree	24.1	18.9	24.4	17.8	13.2
Postgraduate degree	20.6	23.7	22.3	10.4	11.1
Aged 25 to 34	31.3	24.0	24.2	22.3	17.5
0 to 8 school years	13.5	21.5	18.0	16.3	15.0
Some high school	25.7	21.5	20.0	17.3	14.8
High-school graduate	25.5	22.9	22.5	20.6	17.0
Postsecondary graduate	30.4	25.1	23.9	22.8	17.7
Bachelor's degree	38.3	24.8	31.0	26.8	19.5
Postgraduate degree	34.9	26.4	33.8	23.0	20.8
Aged 35 to 44	37.1	27.0	28.0	25.9	20.3
0 to 8 school years	20.8	23.7	19.6	17.5	15.0
Some high school	30.0	24.0	23.1	20.0	16.8
High-school graduate	32.5	25.7	26.6	24.3	19.9
Postsecondary graduate	36.8	28.7	28.4	27.6	20.9
Bachelor's degree	45.6	27.7	35.6	30.6	22.6
Postgraduate degree	42.5	30.5	37.0	24.4	23.5
Aged 45 to 54	39.3	28.7	30.2	27.7	20.6
0 to 8 school years	29.0	25.1	22.3	19.1	15.8
Some high school	31.5	25.7	25.9	20.8	18.1
High-school graduate	35.1	27.8	28.9	27.4	20.8
Postsecondary graduate	37.7	30.6	31.5	29.8	21.3
Bachelor's degree	48.4	29.7	36.8	30.0	22.0
Postgraduate degree	48.2	31.8	38.3	28.7	22.8
Aged 55 to 64	36.4	26.6	28.8	22.0	18.4
0 to 8 school years	24.3	23.5	21.4	16.5	15.0
Some high school	31.6	25.0	26.6	19.4	17.3
High-school graduate	32.6	27.9	29.2	22.2	19.3
Postsecondary graduate	37.6	28.5	31.3	23.4	19.0
Bachelor's degree	38.1	25.6	33.9	21.5	19.0
Postgraduate degree	42.3	27.7	36.3	29.9	20.5
Aged 65 plus	12.3	14.8	19.1	10.7	10.1
0 to 8 school years	12.1	12.0	15.3	5.8	7.3
Some high school	18.6	16.8	16.6	8.4	13.0
High-school graduate	12.3	13.4	15.0	18.8	12.6
Postsecondary graduate	8.6	17.5	25.2	9.2	10.1
Bachelor's degree	...	11.2	17.7	6.9	6.1
Postgraduate degree	...	4.6	11.3	6.4	5.1

Table 30
Compensation per hour in 2000 — Part 3

	Transportation and warehousing	Information and cultural industries	Professional, scientific and technical services	Administrative and support ¹	Finance ²
	dollars				
Total	22.4	27.2	26.0	17.1	32.4
Female	20.3	23.8	21.5	16.1	28.3
Aged 16 to 17	9.7	8.4	9.5	9.4	12.8
0 to 8 school years	9.1	12.0	6.2	10.2	14.3
Some high school	9.8	8.1	9.5	9.4	12.2
High-school graduate	7.9	10.6	9.5	8.9	14.3
Postsecondary graduate	12.0	10.0	10.1	9.9	14.1
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	15.1	16.4	14.1	13.3	19.2
0 to 8 school years	10.9	12.7	12.9	10.0	13.3
Some high school	13.7	11.9	9.5	11.3	13.8
High-school graduate	14.6	15.4	11.7	13.2	18.6
Postsecondary graduate	14.9	16.4	13.6	13.5	19.0
Bachelor's degree	19.9	18.7	17.1	15.9	23.7
Postgraduate degree	18.4	22.3	20.7	19.7	24.0
Aged 25 to 34	20.1	23.7	21.8	17.7	27.7
0 to 8 school years	14.3	19.3	12.1	11.8	24.6
Some high school	14.8	15.6	13.8	13.5	18.1
High-school graduate	18.4	22.3	17.7	15.9	25.5
Postsecondary graduate	19.0	22.2	19.7	17.6	25.7
Bachelor's degree	25.6	24.9	22.9	20.1	32.6
Postgraduate degree	29.3	30.2	27.6	23.8	31.3
Aged 35 to 44	21.3	25.9	23.6	16.4	30.6
0 to 8 school years	13.7	24.2	10.1	12.4	21.4
Some high school	17.2	18.4	15.0	14.0	20.6
High-school graduate	19.8	24.0	19.3	15.3	27.9
Postsecondary graduate	21.6	25.3	22.4	16.5	29.9
Bachelor's degree	28.7	29.3	28.0	20.1	39.6
Postgraduate degree	30.3	33.1	30.0	25.1	42.0
Aged 45 to 54	21.1	25.5	22.1	16.6	30.3
0 to 8 school years	16.2	19.8	16.4	12.5	20.0
Some high school	18.4	18.2	15.1	14.2	21.3
High-school graduate	21.1	25.2	20.1	15.9	29.8
Postsecondary graduate	20.5	24.9	21.0	17.4	29.6
Bachelor's degree	26.1	25.8	24.1	19.4	35.5
Postgraduate degree	38.7	33.9	30.9	21.3	44.5
Aged 55 to 64	20.5	25.2	20.3	15.6	26.4
0 to 8 school years	15.8	22.1	14.1	12.2	16.1
Some high school	19.6	17.9	15.9	13.0	20.2
High-school graduate	21.2	25.1	19.3	16.7	27.1
Postsecondary graduate	20.5	24.4	21.0	16.4	27.2
Bachelor's degree	24.6	29.8	20.4	19.5	30.7
Postgraduate degree	21.9	29.7	25.3	18.5	27.9
Aged 65 plus	16.0	17.3	14.4	10.5	18.5
0 to 8 school years	17.0	38.8	12.0	9.4	15.3
Some high school	15.4	22.4	12.5	10.9	17.0
High-school graduate	16.0	27.5	16.4	17.0	23.9
Postsecondary graduate	13.9	8.5	15.0	8.6	16.5
Bachelor's degree	22.2	21.1	13.1	5.5	16.0
Postgraduate degree	80.4	20.0	11.3	8.7	12.9

See note at bottom of table.

Table 30
Compensation per hour in 2000 — Part 3 (concluded)

	Transportation and warehousing	Information and cultural industries	Professional, scientific and technical services	Administrative and support ¹	Finance ²
	dollars				
Male	22.9	30.0	28.9	17.9	37.8
Aged 16 to 17	11.0	9.3	9.6	10.7	14.9
0 to 8 school years	9.9	25.7	10.8	10.3	15.1
Some high school	10.9	8.4	8.2	10.7	13.1
High-school graduate	13.4	11.2	11.2	11.1	17.9
Postsecondary graduate	11.3	13.7	14.5	10.6	19.8
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	15.0	18.3	17.1	13.6	19.6
0 to 8 school years	12.9	17.0	18.3	14.3	16.8
Some high school	12.5	12.3	11.2	12.5	13.3
High-school graduate	15.2	16.7	14.0	13.5	19.0
Postsecondary graduate	15.9	18.5	16.6	14.0	19.4
Bachelor's degree	19.9	22.4	21.2	15.7	24.6
Postgraduate degree	22.5	24.0	20.8	13.1	22.2
Aged 25 to 34	21.0	27.4	26.7	19.0	34.2
0 to 8 school years	16.8	20.6	14.8	17.0	18.0
Some high school	16.9	18.8	14.8	16.9	20.5
High-school graduate	19.5	23.3	20.8	18.3	29.6
Postsecondary graduate	21.9	25.5	23.9	18.8	30.7
Bachelor's degree	28.4	30.3	28.3	21.7	38.7
Postgraduate degree	28.1	34.8	31.1	27.3	39.6
Aged 35 to 44	23.7	32.8	31.4	19.8	43.1
0 to 8 school years	18.6	37.1	15.6	16.0	19.0
Some high school	19.2	24.7	17.2	17.4	25.7
High-school graduate	22.8	29.7	24.5	19.6	33.4
Postsecondary graduate	25.4	32.1	29.1	20.3	40.3
Bachelor's degree	31.1	34.9	33.1	21.4	49.5
Postgraduate degree	34.5	39.6	35.4	26.0	54.3
Aged 45 to 54	25.8	35.3	33.3	19.8	44.4
0 to 8 school years	19.2	33.1	18.8	17.0	20.5
Some high school	21.0	26.5	20.8	17.7	23.1
High-school graduate	25.6	33.5	27.2	19.1	40.3
Postsecondary graduate	27.6	35.2	30.8	20.2	42.8
Bachelor's degree	31.3	37.3	33.4	22.0	50.8
Postgraduate degree	41.4	39.2	38.5	24.6	55.3
Aged 55 to 64	23.5	35.4	31.4	17.8	36.2
0 to 8 school years	18.1	39.2	21.0	16.4	20.3
Some high school	20.8	28.0	19.7	18.1	27.1
High-school graduate	25.8	33.1	26.8	19.6	38.9
Postsecondary graduate	26.2	34.0	32.2	17.6	38.6
Bachelor's degree	23.3	42.3	27.8	15.1	36.0
Postgraduate degree	36.6	38.3	36.4	18.2	39.5
Aged 65 plus	12.9	33.7	18.3	14.1	19.4
0 to 8 school years	10.4	34.2	25.1	13.8	15.2
Some high school	13.8	15.6	14.8	16.2	17.2
High-school graduate	14.9	13.4	21.8	17.5	23.4
Postsecondary graduate	16.1	21.2	20.5	14.5	21.0
Bachelor's degree	8.9	73.6	13.8	4.4	17.9
Postgraduate degree	2.9	39.0	20.2	7.1	14.9

1. Administrative and support, waste management and remediation services.

2. Finance, insurance, real estate and rental and leasing.

Table 31
Compensation per hour in 2000 — Part 4

	Educational services	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)
	dollars				
Total	18.9	16.2	16.7	11.1	14.4
Female	18.1	15.9	15.5	10.3	12.7
Aged 16 to 17	6.4	7.8	9.3	7.6	7.4
0 to 8 school years	2.7	9.7	9.7	9.7	8.7
Some high school	6.5	7.8	9.2	7.5	7.3
High-school graduate	7.2	6.7	10.2	7.5	7.6
Postsecondary graduate	8.0	7.9	10.0	7.2	7.5
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	11.0	11.3	11.8	9.1	9.3
0 to 8 school years	3.3	10.8	12.4	9.2	10.8
Some high school	7.1	8.7	9.6	8.4	7.8
High-school graduate	8.0	9.9	11.8	8.8	8.6
Postsecondary graduate	9.2	11.5	11.9	9.4	9.7
Bachelor's degree	13.5	13.4	13.6	10.0	12.0
Postgraduate degree	14.7	12.0	16.2	11.4	16.7
Aged 25 to 34	16.3	16.1	16.7	11.5	12.8
0 to 8 school years	6.9	13.8	13.3	10.4	12.6
Some high school	8.7	11.1	12.2	9.7	10.8
High-school graduate	11.1	13.3	15.3	10.7	11.2
Postsecondary graduate	12.4	15.4	16.1	11.9	12.7
Bachelor's degree	17.0	18.8	18.8	13.7	16.3
Postgraduate degree	18.7	18.9	20.7	14.9	21.3
Aged 35 to 44	17.9	16.7	18.5	11.3	13.8
0 to 8 school years	8.9	11.3	14.9	9.9	9.5
Some high school	9.8	12.2	14.3	9.9	10.9
High-school graduate	12.2	13.9	17.3	10.9	12.2
Postsecondary graduate	13.8	16.6	18.8	21.1	14.1
Bachelor's degree	20.7	21.2	20.6	14.6	19.7
Postgraduate degree	21.7	19.8	26.2	14.5	25.0
Aged 45 to 54	20.0	16.5	17.9	10.8	13.7
0 to 8 school years	10.8	12.1	13.4	10.3	9.9
Some high school	11.4	12.9	13.3	10.1	10.5
High-school graduate	13.8	14.5	16.0	10.6	13.0
Postsecondary graduate	16.3	16.3	18.5	11.5	14.0
Bachelor's degree	22.1	21.1	20.3	12.0	23.3
Postgraduate degree	24.2	20.2	28.8	14.6	29.1
Aged 55 to 64	19.4	16.1	14.3	10.3	12.7
0 to 8 school years	10.4	11.7	11.5	9.3	9.5
Some high school	11.4	13.5	12.6	9.8	11.0
High-school graduate	14.1	14.5	15.1	10.2	12.6
Postsecondary graduate	17.0	16.5	14.8	11.4	13.3
Bachelor's degree	22.7	20.9	13.8	13.6	18.5
Postgraduate degree	25.3	19.5	19.2	11.0	25.8
Aged 65 plus	19.1	14.5	13.1	7.4	14.0
0 to 8 school years	19.9	13.8	12.7	8.0	12.8
Some high school	9.5	12.8	11.8	7.4	10.9
High-school graduate	19.2	18.4	13.4	9.7	17.9
Postsecondary graduate	21.2	14.4	16.9	5.6	13.4
Bachelor's degree	17.1	12.2	7.0	5.3	11.5
Postgraduate degree	22.9	13.4	12.7	2.5	26.1

Table 31
Compensation per hour in 2000 — Part 4 (concluded)

	Educational services	Health care and social assistance	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)
	dollars				
Male	20.3	17.4	17.7	12.1	15.9
Aged 16 to 17	6.4	7.1	10.0	7.8	7.4
0 to 8 school years	16.3	2.3	11.1	8.8	9.0
Some high school	5.9	7.2	9.8	7.7	7.0
High-school graduate	8.7	6.2	10.7	8.1	8.6
Postsecondary graduate	7.9	8.9	11.3	8.2	7.9
Bachelor's degree	...	...	...	...	...
Postgraduate degree	...	...	...	...	...
Aged 18 to 24	10.8	10.4	12.6	9.7	10.7
0 to 8 school years	6.3	9.4	10.5	10.2	10.7
Some high school	8.2	9.2	10.2	8.6	9.4
High-school graduate	8.9	8.5	12.5	9.6	10.0
Postsecondary graduate	9.8	10.9	13.1	10.1	11.4
Bachelor's degree	13.3	12.3	14.5	11.6	12.4
Postgraduate degree	14.0	12.3	17.9	10.4	14.1
Aged 25 to 34	17.5	15.9	18.9	13.1	15.6
0 to 8 school years	9.8	13.2	14.1	11.0	14.0
Some high school	10.5	11.1	13.8	11.1	13.4
High-school graduate	12.2	13.3	206.0	12.5	14.3
Postsecondary graduate	14.6	15.5	18.5	13.6	15.9
Bachelor's degree	18.8	18.3	19.6	14.3	18.6
Postgraduate degree	19.7	16.1	20.8	15.7	25.4
Aged 35 to 44	20.2	19.0	21.0	14.6	17.5
0 to 8 school years	10.9	13.6	15.1	11.6	14.0
Some high school	12.4	13.9	17.2	11.9	14.4
High-school graduate	14.2	16.2	19.3	14.0	16.4
Postsecondary graduate	17.8	18.4	22.3	15.6	17.9
Bachelor's degree	22.2	21.9	21.0	16.3	21.7
Postgraduate degree	23.5	20.5	26.9	19.2	30.4
Aged 45 to 54	23.0	19.8	22.1	13.7	18.2
0 to 8 school years	12.9	10.1	17.7	10.3	14.9
Some high school	13.2	13.9	16.3	11.4	15.7
High-school graduate	15.9	16.2	18.6	13.6	16.9
Postsecondary graduate	20.0	20.0	22.8	14.7	17.8
Bachelor's degree	24.3	23.3	27.2	16.7	23.1
Postgraduate degree	25.3	19.8	28.8	15.7	37.6
Aged 55 to 64	20.1	17.1	16.7	11.9	17.1
0 to 8 school years	12.8	12.8	15.8	10.2	13.9
Some high school	12.8	15.3	16.3	11.9	15.7
High-school graduate	16.5	17.8	15.8	11.9	17.0
Postsecondary graduate	20.1	18.1	19.3	12.9	17.8
Bachelor's degree	19.9	18.5	12.7	10.9	16.2
Postgraduate degree	23.4	16.5	17.7	16.0	27.3
Aged 65 plus	18.7	11.0	11.8	7.4	9.6
0 to 8 school years	14.6	16.8	9.2	5.7	8.5
Some high school	14.1	22.1	13.6	8.6	12.1
High-school graduate	33.4	15.7	16.5	8.7	10.4
Postsecondary graduate	20.6	15.3	12.7	8.5	8.9
Bachelor's degree	12.1	8.2	5.2	4.6	5.7
Postgraduate degree	22.3	6.7	3.6	2.0	12.5

References

- Alarcon, J., J. Van Heemst, and N. De Jong. 2000. "Extending the SAM with social and environmental indicators: An application to Bolivia." *Economic Systems Research*. Vol. 12. No. 4. p. 473-496.
- Avery, R.B., and A.B. Kennickell. 1991. "Household saving in the U.S." *Review of Income and Wealth*. Vol. 37. No. 4. p. 409-432.
- Bhatia, K.B. 1970. "Accrued capital gains, personal income and savings in the United States, 1948-1964." *Review of Income and Wealth*. Vol. 16. No. 4. p. 363-378.
- Canberra Group (Expert Group on Household Income Statistics). 2001. *The Canberra Group Final Report and Recommendations*. Ottawa, Ontario.
- den Bakker, G.P., J. de Gijt, and S.J. Keuning. 1994. "An historical social accounting matrix for the Netherlands (1938)." *Review of Income and Wealth*. Vol. 40. No. 2. p. 175-189.
- De Santis, R.A., and H.G. Ozhan. 1997. "Social accounting matrix for Turkey 1990." *Economic Systems Research*. Vol. 9. No. 3. p. 281-285.
- Eisner, R. 1991. "The real rate of U.S. national saving." *Review of Income and Wealth*. Vol. 37. No. 1. p. 15-32.
- Inter-Secretariat Working Group on National Accounts. 1993. *System of National Accounts 1993*. New York. United Nations, Department for Economic and Social Information and Policy Analysis, Statistics Division.
- Jackson, C., and P. O'Hagan. 2000. Compilation of 'Personal Sector' Accounts in the Canadian System of National Accounts. *Handbook of National Accounting (Household Accounting: Experience in Concepts and Compilation)*. Studies in Methods, Series F. No. 75/Vol. 1. New York. United Nations, Department of Economic and Social Affairs, Statistics Division. p. 171-188.
- Keuning, S.J. 2000. "Accounting for welfare with SESAME." *Handbook of National Accounting (Household Accounting: Experience in Concepts and Compilation)*. Studies in Methods, Series F. No. 75/Vol. 2. New York. United Nations, Department of Economic and Social Affairs, Statistics Division. p. 273-307.
- Lee, C. 2001. "Life-cycle saving in the United States, 1900-90." *Review of Income and Wealth*. Vol. 47. No. 2. p. 165-179.
- Madsen, B., and C. Jensen-Butler. 2002. "Interregional Social Accounting Matrices for Denmark." *14th International Conference on Input-Output Techniques*. Montréal. October 10 to 15.
- Pyatt, G., and J.I. Round. 1977. "Social accounting matrices for development planning." *Review of Income and Wealth*. Vol. 23. No. 4. p. 339-364.
- Reinert, K.A., and D.W. Roland-Holst. 1992. "A detailed social accounting matrix for the USA, 1988." *Economic Systems Research*. Vol. 4. No. 2. p. 173-187.
- Resosudarmo, B.P., and E. Thorbecke. 1996. "The impact of environmental policies on household incomes for different socio-economic classes: The case of air pollutants in Indonesia." *Ecological Economics*. Vol. 17. No. 2. p. 83-94.

Robinson, S., and A. Cattaneo. "Updating and Estimating a social accounting matrix using cross entropy methods." *Economic Systems Research*. Vol. 13. No. 1. p. 47-64.

Roland-Holst, D.W. 1990. "Interindustry analysis with social accounting methods." *Economic Systems Research*. Vol. 2. No. 2. p. 125-145.

Ruggles, N., and R. Ruggles. 1986. "The integration of macro and micro data for the household sector." *Review of Income and Wealth*. Vol. 32. No. 3. p. 245-276.

Ruggles, N., and R. Ruggles. 1992. "Household and enterprise saving and capital formation in the United States: A market transactions view." *Review of Income and Wealth*. Vol. 38. No. 2. p. 119-163.

Sabelhaus, J., and K. Pence. 1999. "Household saving in the '90s: Evidence from cross-section wealth surveys." *Review of Income and Wealth*. Vol. 45. No. 4. p. 435-453.

Siddiqi, Y. 2004. *Integrated Economic Accounts for Canada, 2000*. Ottawa, Ontario. Statistics Canada.

Statistics Canada. 2001 *Census: analysis series: Income of Canadian Families*. Statistics Canada Catalogue no. 96F0030XIE2001014. Ottawa, Ontario.

Stone, R. 1985. "The disaggregation of the household sector in the national accounts." *Social Accounting Matrices: A Basis of Planning*. G. Pyatt and J.I. Round (eds.). Washington, D.C. The World Bank.

Stuttard, N., and M. Frogner. 2003a. "Developing a pilot social accounting matrix for the United Kingdom." *Economic Trends*. No. 594. p. 80-93.

Stuttard, N., and M.L. Frogner. 2003b. "Linking together economic and social data: Using social accounting matrices to look at the distribution of earnings." *Labour Market Trends*. Vol. 111. No. 5. p. 247-256.

Thorbecke, E. 1998. "Social accounting matrices and social accounting analysis." *Methods of Interregional and Regional Analysis*. W. Isard, I.J. Azis, M.P. Drennan, R.E. Miller, S. Saltzman, and E. Thorbecke (eds.). Aldershot, England. Ashgate Publishing.

Timmerman, J.G., and P.J.M. van de Ven. 1994. *A social accounting matrix for the Netherlands: concepts and results*. Voorburg. Statistics Netherlands, National Accounts. Paper No. NA-068.

Webb, R.H. 1980. "A difficulty in interpreting the personal saving rate." *Review of Income and Wealth*. Vol. 26. No. 4. p. 437-439.

Yan, X. 2000. *Understanding Saving and Wealth Accumulation*. Ottawa, Ontario. Statistics Canada. Income and Expenditure Accounts Division. Manuscript.